Construction Permit Application
Project Columbia

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New-Indy Catawba LLC
Catawba, South Carolina

NEW INDY CONTAINERBOARD

1.0 Introduction

New-Indy Catawba LLC (New-Indy) operates a pulp and paper mill located in Catawba, South Carolina. On December 31, 2018 New-Indy Containerboard acquired the Catawba Mill from Resolute Forest Products (Resolute). New-Indy plans to convert the Catawba Mill from bleached paper grades (lightweight coated paper and market pulp) to manufacturing unbleached or brown paper (linerboard and market pulp). New-Indy refers to this investment as Project Columbia.

2.0 Project Description

Project Columbia features the conversion of the Kraft Fiberline from manufacturing bleached paper grades to unbleached paper grades. The project includes converting the No. 3 Coated Paper Machine to manufacture linerboard and the Pulp Dryer to process unbleached pulp. The project also includes retiring the Bleach Plant, Chlorine Dioxide Plant, TMP Process, No. 1 Paper Machine, No. 1 Coater, No. 2 Coater and the No. 1 Power Boiler. A detailed description of the changes to each Title V emission unit is provided below.

2.1 Woodyard Area (EU ID 01)

No changes are planned for the Woodyard Area. Project Columbia may slightly increase the total throughput.

2.2 Kraft Process - Kraft Pulp Mill (EU ID 02)

The Kraft Pulp Mill currently products virgin fiber suitable for brightening (bleaching) to manufacture lightweight coated paper and market pulp. Project Columbia will convert the Kraft pulping equipment to manufacture virgin fiber suitable for manufacturing unbleached linerboard. The virgin pulp yield will be increased by tripling the Kappa from less than 30 for beached pulp to over 90 for unbleached pulp. The higher Kappa will produce more tons of virgin pulp using the same amount of raw materials (wood and cooking liquor). The change in pulp will also shorten the cook time in the continuous digester, further increasing production of virgin pulp.

The six (6) existing washers and associated filtrate tanks in the oxygen delignification and bleaching systems will be repurposed to create two parallel three-stage brownstock washers. New refiners and screw presses will be installed to facilitate processing the higher Kappa pulp. The existing knotters, screens, thickeners, blow tubes and reactors will be retired in place.

2.3 Kraft Process – Bleach Plant (EU ID 03)

The Bleach Plant currently brightens virgin fiber supplied by the Kraft Pulp Mill suitable for manufacturing lightweight coated paper and market pulp. Project Columbia will eliminate the need for bleaching the virgin fiber. The existing bleaching reactors and towers will be retired in place. The bleach

plant washers and associated filtrate tanks will be repurposed to become brownstock washers in the Kraft Pulp Mill.

2.4 Kraft Process – Chlorine Dioxide Plant (EU ID 04)

The Chlorine Dioxide Plant supplies the primary bleaching chemical chlorine dioxide to the Bleach Plant. Project Columbia will eliminate the need to produce the bleaching chemical. The Chlorine Dioxide Plant will be retired in place following conversion of the Kraft Pulp Mill to unbleached virgin fiber.

2.5 TMP Process (EU ID 05)

The TMP Process produces mechanical pulp for lightweight coated paper manufacturing. Linerboard and market pulp do not use TMP pulp. The TMP Process will be retired in place following conversion of the No. 3 Paper Machine and the Pulp Dryer. The pulp storage tanks assigned to TMP (EU ID 12 and insignificant sources) will remain serviceable for storing Kraft pulp.

2.6 Paper Mill (EU ID 06)

The No. 3 Paper Machine will be reconfigured to produce linerboard. The changes include modifications to the stock cleaning system, stock refining system, stock screening systems, whitewater system, headbox, forming wire, vacuum system and machine pulpers, adding a new dryer section, and replacing the winder. The two-sided rod coating system, coating preparation system, coating tanks, air flotation dryer, infrared dryer and hot oil heating system will be retired and removed.

The Pulp Dryer will be reconfigured to support manufacturing unbleached market pulp. The changes include repurposing the stock cleaning, refining and screening systems from the No. 1 Paper Machine, which will be retired. The No. 2 Paper Machine will remain operational and may be used to produce an uncoated lightweight brown sheet. It should be noted the combined capacity of the No. 2 paper machine, No. 3 paper machine and the pulp dryer far exceeds the capacity of the Kraft pulp mill. The two paper machines and pulp dryer will be operated according to market demands for the different products each produces.

The No. 1 Paper Machine will be retired in place, with the exception of the repurposed stock cleaning and screening systems. The No. 1 Coater Dryer, No. 2 Coater Dryer, and starch system will be retired in place.

2.7 Chemical Recovery (EU ID 07)

The No. 1 Evaporator Set will be modified to increase the evaporation rate to account for the reduction in the solids content of the weak black liquor from the repurposed washers. The No. 1 evaporator set piping will be reconfigured to allow operation as a five-effect system. No modifications to the No. No.2 and No. 3 Evaporator Sets, No. 2 and No. 3 Recovery Furnaces, No.2 and No. 3 Smelt Dissolving Tanks, No. 2 Lime Kiln or Causticizing Area are necessary to support the conversion to unbleached pulp

production. Following the conversion to brown pulp, the Catawba Mill anticipates the cooking liquor cycle and black liquor solids generation to remain below historical operating levels and existing equipment capacities.

2.8 Utilities (EU ID 08)

The proposed project is expected to reduce the overall mill steam demand due to the improved thermal efficiency of the Kraft Pulp Mill and retirement of the Bleach Plant. The reduction in mill steam demand will result in the retirement of the No. 1 Power Boiler.

2.9 Waste Treatment (EU ID 9)

There are no physical changes planned to the waste treatment system. The volume of wastewater is expected to be reduced by approximately 50% following the conversion to unbleached pulp. The methanol loading in the foul condensate is also expected to be approximately one-half the current level following the conversion to unbleached pulp.

2.10 Storage Tanks (EU ID 10)

The methanol tank is located in the Chlorine Dioxide Plant and will be retired from methanol service following conversion to unbleached pulp. This tank may be repurposed for another use in the future.

2.11 Miscellaneous (EU ID 11)

There are no physical changes planned to the landfill, roads, and material usage.

2.12 HD Pulp Storage Tanks (EU ID 12)

The HD pulp storage tanks will store unbleached pulp following the conversion. The pumps and piping will be modified to better support unbleached pulp and re-direct pulp from the No. 1 Paper Machine to the remaining paper machines and the pulp dryer. The agitators inside these storage tanks will also be replaced or rebuilt. The No. 4 HD storage tank will be repurposed as an LD storage tank.

3.0 Emission Calculations

The emissions from each emission unit are calculated using published emission factors from NCASI or the U.S. Environmental Protection Agency (USEPA), unless more representative stack test data were available. The calculation methods are described below, and detailed citations for each emission factor are provided with the calculations in Attachments B, C and D.

3.1 Kraft Pulp Mill

The emissions from the Kraft pulp mill are calculated using representative emission factors published by NCASI. The published emission factors for each equipment type in the pulp mill are used to determine

the total emissions. This includes emissions from the digester system, brownstock washer system, No. 1 evaporator set, condensate stripper system and wastewater treatment system.

The published NCASI emission factors have been adjusted to account for changing from manufacturing bleached pulp with a Kappa less than 30 to unbleached pulp with a Kappa exceeding 90 based on additional information published by NCASI. These emission factors and the basis of all adjustments to the emission factors are presented in Attachment C.

3.2 Paper Machines and Pulp Dryer

The emissions from the paper machines and the pulp dryer are calculated using representative emission factors published by NCASI. The published NCASI emission factors include paper machines producing coated paper and linerboard. The published NCASI emission factors for linerboard machines also include emission factors for selected compounds at mills with low whitewater methanol concentrations less than 50 ppmv. The Catawba Mill whitewater methanol concentration is expected to be less than 50 ppmv following the conversion to linerboard.

The Title V emission factors for estimating particulate matter emissions from paper machines have been updated using published NCASI emission factors for coated paper manufacturing and linerboard. The NCASI emission factors for linerboard and updated particulate matter emission factors are presented in Attachment D.

3.10 Other Sources

The emissions from the woodyard, bleach plant, chlorine dioxide plant, TMP process, No.1 coater dryer, No. 2 coater dryer, and No. 1 power boiler are based on emission factors in the Title V Renewal Application. The emission factors for pulp storage tanks are expressed as pounds per hour per tank and do not change due to Project Columbia.

4.0 Regulatory Applicability

4.1 South Carolina Regulation 61-62.5, Standard No. 2 – Ambient Air Quality Standards

Standard No. 2 regulates maintenance of the national ambient air quality standards. New-Indy has reviewed the Department modeling guidance entitled "Guidance Concerning Other Information Used for Permitting Requirements in Demonstrating Emissions Do Not Interfere With Attainment or Maintenance of any State or Federal Standard" (February 28, 2017). Per the guidance, "a project involving a net facility-wide emissions decrease for a pollutant satisfies permitting review requirements. The netting calculation must be applied on a pollutant by pollutant basis. Facility-wide emission decreases, expressed in tons per year, could be calculated using current allowable to future allowable emissions or the netting methodologies in the PSD regulation."

New-Indy has compared the current allowable emissions to the future allowable emissions in Table 1 below and determined the proposed project will result in a net decrease in allowable emissions, expressed in tons per year, for all criteria pollutants. New-Indy believes this demonstrates the project will not interfere with attainment or maintenance of State or Federal Standards following the guidance of the Department.

4.2 South Carolina Regulation 61-62.5, Standard No. 3 – Waste Combustion and Reduction

Standard No. 3 applies to any source which burns any waste other than virgin fuels for any purpose. The standard contains various exemptions for the pulp and paper source category. Section I.J.1 specifies that gaseous process streams containing TRS compounds that are regulated in accordance with Section XI of Regulation 61-62.5, Standard No. 4, are not subject to Standard No. 3. Since the NCG and SOG are gaseous process streams containing TRS that are regulated in accordance with Standard No. 4 or NSPS Subpart BB/BBa (see below), combustion of those gases in the No.1 and No.2 Combination Boilers is not subject to Standard No. 3.

4.3 South Carolina Regulation 61-62.5, Standard No. 4 – Emissions from Process Industries

Standard No. 4 regulates emissions for specific types of industries. Emission limits for particulate matter under Section VIII are calculated using process weight based equations as follows:

For process weights up to thirty (30) tons per hour:

$$E = (F)\ 4.10\ P^{0.67}$$

For process weights greater than thirty tons per hour:

$$E = (F)\ (55.0\ P^{0.11} - 40)$$

Where: E = the applicable emission rate in pounds per hour
F = the affect factor from Table B of the rule
P = the process weight in tons per hour

Under Section IX, Visible emissions from sources not otherwise specified in the regulation are limited to no greater than 40 percent for unit that began construction or modification on or before December 31, 1985. Where construction or modification began following that date, visible emissions are limited to no more than 20%.

Section XI regulates emissions for Total Reduced Sulfur (TRS) from Kraft Pulp Mills where construction or modification commenced prior to September 24, 1976 from recovery furnaces, digester systems, multiple-effect evaporator systems, lime kilns and condensate stripper systems. The TRS emissions from the modified digester system, No. 1 evaporator set and condensate stripper system are subject to 40 CFR Part 60, Subpart BB.

Table 1

TITLE V PERMIT - MAXIMUM FACILITY-WIDE EMISSION RATES (TONS PER YEAR)							
SOURCE	PM	PM_{10}	$PM_{2.5}$	SO_2	NO_x	CO	Lead
WOODYARD	105.00	15.75	1.05	–	–	–	–
KRAFT MILL NCG SYSTEM [A]	–	–	–	3,363.93	239.07	39.22	–
BLEACH PLANT	–	–	–	–	–	256.40	–
NO. 1 PAPER MACHINE + NO. 1 COATER	3.61	4.08	2.91	11.06	31.15	17.66	–
NO. 2 PAPER MACHINE + NO. 2 COATER	4.91	5.53	3.98	14.74	41.53	23.55	–
NO. 3 PAPER MACHINE + COATER	4.21	4.67	3.51	10.99	30.95	17.55	–
PULP DRYER	0.86	0.86	0.86	–	–	–	–
PM STARCH SILOS	1.73	1.05	0.40	–	–	–	–
NO. 2 RECOVERY FURNACE	76.24	54.22	42.55	3,465.81	494.06	249.31	0.04
NO. 3 RECOVERY FURNACE	137.35	97.97	76.34	3,465.81	536.11	450.48	0.04
NO. 2 SMELT TANK	30.91	33.38	33.38	1.24	4.12	1.65	–
NO. 3 SMELT TANK	58.55	60.31	60.31	2.23	7.45	2.98	–
NO. 2 LIME KILN	7.64	9.80	8.16	2.55	179.91	10.86	–
CAUSTICZING AREA	7.65	5.89	2.81	–	–	–	–
NO. 1 POWER BOILER	225.62	175.36	131.87	3,292.52	469.36	137.97	0.04
NO. 1 COMBINATION BOILER	298.75	250.68	221.49	3,773.88	538.00	1,030.18	7.10
NO. 2 COMBINATION BOILER	519.95	420.98	372.99	6,739.07	960.70	1,308.76	7.10
PM AIR MAKEUP UNITS	1.22	4.28	4.28	0.33	79.47	46.47	–
ROADS	459.79	91.96	22.57	–	–	–	–
LANDFILL	44.50	12.68	1.27	–	–	–	–
INSIGNIFICANT ACTIVITIES	2.53	2.53	2.53	2.36	18.46	7.74	–
TITLE V MAX EMISSIONS	1,991.02	1,251.98	993.26	24,146.52	3,630.34	3,600.78	14.32
PROJECT COLUMBIA PERMIT APPLICATION - MAXIMUM FACILITY-WIDE EMISSION RATES (TONS PER YEAR)							
SOURCE	PM	PM_{10}	$PM_{2.5}$	SO_2	NO_x	CO	Lead
WOODYARD	105.00	15.75	1.05	–	–	–	–
KRAFT MILL NCG SYSTEM [A]	–	–	–	4,976.78	204.67	35.85	–
BLEACH PLANT	–	–	–	–	–	0.00	–
NO. 1 PAPER MACHINE + NO. 1 COATER	0.00	0.00	0.00	0.00	0.00	0.00	–
NO. 2 PAPER MACHINE + NO. 2 COATER	0.21	0.21	0.21	0.00	0.00	0.00	–
NO. 3 PAPER MACHINE + COATER	0.88	0.88	0.88	0.00	0.00	0.00	–
PULP DRYER	0.24	0.24	0.24	–	–	–	–
PM STARCH SILOS	0.00	0.00	0.00	–	–	–	–
NO. 2 RECOVERY FURNACE	76.24	54.22	42.55	3,465.81	494.06	249.31	0.04
NO. 3 RECOVERY FURNACE	137.35	97.97	76.34	3,465.81	536.11	450.48	0.04
NO. 2 SMELT TANK	30.91	33.38	33.38	1.24	4.12	1.65	–
NO. 3 SMELT TANK	58.55	60.31	60.31	2.23	7.45	2.98	–
NO. 2 LIME KILN	7.64	9.80	8.16	2.55	179.91	10.86	–
CAUSTICZING AREA	7.65	5.89	2.81	–	–	–	–
NO. 1 POWER BOILER	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NO. 1 COMBINATION BOILER	298.75	250.68	221.49	3,773.88	538.00	1,030.18	7.10
NO. 2 COMBINATION BOILER	519.95	420.98	372.99	6,739.07	960.70	1,308.76	7.10
PM AIR MAKEUP UNITS	1.22	4.28	4.28	0.33	79.47	46.47	–
ROADS	459.79	91.96	22.57	–	–	–	–
LANDFILL	44.50	12.68	1.27	–	–	–	–
INSIGNIFICANT ACTIVITIES	2.53	2.53	2.53	2.36	18.46	7.74	–
PROJECT COLUMBIA MAX EMISSIONS	1,751.41	1,061.76	851.06	22,430.06	3,022.95	3,144.28	14.28
CHANGE IN MAXIMUM FACILITY-WIDE EMISSION RATES (TONS PER YEAR)							
SOURCE	PM	PM_{10}	$PM_{2.5}$	SO_2	NO_x	CO	Lead
TITLE V MAX EMISSIONS	1,991.02	1,251.98	993.26	24,146.52	3,630.34	3,600.78	14.32
PROJECT COLUMBIA MAX EMISSIONS	1,751.41	1,061.76	851.06	22,430.06	3,022.95	3,144.28	14.28
CHANGE IN MAXIMUM EMISSIONS	(239.61)	(190.22)	(142.20)	(1,716.47)	(607.39)	(456.50)	(0.04)

A - SO2 emissions based on BACT emission limit (10.1 lb/ton) and maximum permitted production.

The modified No. 3 paper machine will be subject to the Section VIII particulate emission limit of 52.5 pounds per hour and the section IX opacity limit of 20%. The modified pulp dryer will be subject to the Section VIII particulate emission limit of 41.0 pounds per hour and the section IX opacity limit of 20%.

4.4 South Carolina Regulation 61-62.5, Standard No. 7 – Prevention of Significant Deterioration Permit Requirements

Standard No. 7 applies to construction of a new major stationary source or a "project" conducted at an existing major stationary source located in an area designated as attainment or unclassifiable in 40 CFR 81.341. The New-Indy Catawba Mill is considered a major stationary source because it emits or has the potential to emit 100 tons per year or more of a regulated New Source Review (NSR) pollutant as defined in SC Reg. 61-62.5, Standard No. 7. The Catawba Mill is located in York County, which is classified as attainment or unclassifiable for all pollutants. Because it includes physical changes to the Mill, Project Columbia is a "project" as defined in Standard No. 7(b)(40).

The Prevention of Significant Deterioration (PSD) permit requirements of paragraphs (j) though (r) of Standard No. 7 apply to new major stationary sources or "major modifications" to existing major stationary sources. As specified in Standard No. 7(a)(2)(iv)(a), a project is considered a "major modification" if it causes two types of emissions increases—a "significant emission increase" (as defined in Standard No. 7(b)(50)) and a "significant net emission increase" (as defined in Standard No. 7(b)(49) and (b)(34)).

Per Standard No. 7(a)(2)(iv)(a) and (b), determining applicability is a two-step process. The first step determines whether the project will cause a "significant emission increase." If the project does not cause a "significant emission increase" for any NSR-regulated pollutant, the project is not a major modification. If the first step shows that the project causes a "significant emission increase" for any NSR regulated pollutant, the process moves to the second step for that pollutant. The second step determines whether the project will cause a "significant net emission increase." As noted above, a project is considered a "major modification" and subject to Standard No. 7 paragraphs (j) through (r) only if it causes BOTH a "significant emission increase" and a "significant net emission increase."

4.4.1 Step 1—Significant Emission Increase

Step 1 of the applicability analysis determines whether the project will cause a "significant emission increase," which is sometimes called a "project-related emission increase" since it looks at only the project itself. New-Indy used the actual-to-projected actual applicability test of Standard No. 7(a)(2)(c) to determine whether Project Columbia would cause a "significant emission increase" of any NSR-regulated pollutant.

The project emission changes were evaluated on a baseline actual-to-projected actual basis for the following modified or affected sources:

- Kraft Pulp Mill – modified source
- No. 1 Evaporator Set – modified source
- No. 3 Paper Machine – modified source
- Pulp Dryer – modified source
- Woodyard – affected source
- Wastewater Treatment System – affected source

The project emission changes were evaluated on a baseline actual-to-projected actual basis for the following retired sources:

- Bleach Plant
- Chlorine Dioxide Plant
- No. 1 Paper Machine
- No. 1 Coater Dryer
- No. 2 Coater Dryer
- TMP Process
- No. 1 Power Boiler

4.4.1.1 Baseline Actual Emissions

Per Standard No. 7(b)(4)(ii), "baseline actual emissions" are the rate of emissions, in tpy, at which an emission unit actually emitted during any consecutive 24-month period selected by the owner or operator within the 10-year period immediately preceding either the date construction of the project begins or the date a complete permit application for the project is received by DHEC. The consecutive 24-month baseline period that New-Indy selected for the existing emission units for each pollutant is January 2010 through December 2011. The baseline production rates are presented in Attachment E. New-Indy selected the same baseline period for all pollutants to simplify the PSD applicability analysis, although Standard No. 7(b)(4)(ii)(d) allows New-Indy to select a different 24-month baseline period for each pollutant.

As required under (b)(4)(ii)(c), the baseline emissions must exclude any emissions that would have exceeded any current emission limitation. The No. 1 power boiler is currently meets the definition of a limited-use boiler under 40 CFR Part 63, Subpart DDDDDD and is restricted to an annual capacity factor of ten percent (10%). The design heat input capacity of the No. 1 power boiler is 342 mmBtu/hr when firing No. 6 fuel oil, or 2,280 gallons per hour. The baseline emissions are limited to no more than 876 hours at design capacity, or no more than 1,997,280 gallons per year of No. 6 fuel oil. The average annual No. 6 fuel oil consumption during the baseline was 991,744 gallons per year, or approximately five percent (5%) of design capacity. The design heat input capacity of the No. 1 power boiler is 375

mmBtu/hr when firing natural gas. The baseline emissions are limited to no more than 876 hours at design capacity, or no more than 328,500 mmBtu per year of natural gas. The average annual natural gas consumption during the baseline was 27,626 mmBtu, or approximately one percent (1%) of design capacity. Therefore, the No. 1 power boiler actual emissions during the baseline period require no adjustments.

4.4.1.2. Projected Actual Emissions

"Projected actual emissions" are the maximum annual rate, in tpy, at which an existing emission unit is projected to emit in any of the of five (5) years following the date the unit resumes regular operation after a project, or in any one of the ten (10) years following that date, if the project involves an increase in the unit's design capacity or PTE and full utilization would result in a significant emission increase or significant net emission increase. The projected actual emissions for Project Columbia were determined in accordance with Standard No. 7(b)(41)(i) and (ii)(a), and consider all relevant information, including "the company's own representations", "the company's filings with the State and Federal regulatory authorities", and "compliance plans approved under the State Implementation Plan".

As specified in Standard No. 7(b)(41)(ii)(c), when determining project-related emissions increases, emissions that the existing emission units "could have accommodated" during the baseline period are excluded from the projected actual emissions. In this application, New-Indy has not excluded the emissions which "could have been accommodated" to simplify the PSD applicability analysis, although Standard No. 7(b)(41)(ii)(c) allows New-Indy to exclude these emissions from the projected actual emissions.

The projected actual emissions for the No. 2 and No. 3 paper machine and the pulp dryer assume there is an unlimited supply of Kraft pulp to supply all three machines. This approach was followed to maximize operational flexibility; in reality sufficient pulp will exist to operate only two of the three machines at any one time.

4.4.1.3. Creditable Project-Related Emission Decreases

For Project Columbia, the existing Bleach plant, chlorine dioxide plant TMP Process, No. 1 paper machine, No.1 coater dryer, No. 2 coater dryer, and No. 1 power boiler will be permanently removed from service and the operating permits voided, making these emission decreases creditable. As provided for under Standard No. 7(b)(34)(viii), these sources will be permanently retired after the Kraft pulp mill begins manufacturing unbleached pulp for production of linerboard on the No. 3 paper machine, which is defined in (b)(34)(viii) as following a reasonable shakedown period of 180 days.

4.4.1.4. Step 1 Significant Emission Increase Calculation

As noted above, New-Indy used the actual-to-projected actual applicability test of Standard No. 7(a)(2)(c). As such, a "significant emissions increase" is projected to occur if the difference between the

"projected actual emissions" and the "baseline actual emissions" for each existing emissions unit equals or exceeds the significant amount for that pollutant.

The following formula was used for calculating the project-related emissions increase:

SEI = PAE – BAE – RET

where: SEI = significant emission increase
PAE = projected actual emissions (modified and affected sources)
BAE = baseline actual emissions (modified and affected sources)
RET = retired emissions (existing sources)

In determining whether the project-related emissions increase was a significant emission increase, the emission reductions associated with retirement of the bleach plant, No.1 paper machine, No. 1 and No. 2 coater dryers, TMP process, and No. 1 power boiler were included in Step 1. This approach is consistent with the USEPA policy memorandum "Project Emissions Accounting Under the New Source Review Preconstruction Permitting Program" issued on March 13, 2018.

4.4.3. Greenhouse Gases

PSD applicability for greenhouse gases (GHG) in South Carolina is based on the June 3, 2010 EPA Tailoring Rule. The South Carolina General Assembly granted SCDHEC the authority to implement the EPA Tailoring Rule in the Fall of 2010.

PSD is triggered for GHGs if the CO_2 equivalent (CO_2e) emissions increase from a project is75,000 tons per year or more and PSD is also triggered for another regulated compound. As shown above, PSD is not triggered for any compound other than CO2e; therefore, PSD cannot be triggered by the proposed project. For completeness; however, the PSD applicability evaluation includes emissions calculations for CO2e using the same formula presented in section 4.2.2.

4.4.4 PSD Non-Applicability

The changes in emissions from the facility as a result of Project Columbia were compared to the significant emission rates in Standard No. 7(b)(49). Based on the emission calculations described above, presented in Attachments B, C, D and E, and summarized in Table 2 and Table 3, Project Columbia is not subject to the PSD permitting requirements in paragraphs (j) though (r) of Standard No. 7.

Table 2
Baseline Actual Emissions

Emission Unit	Basis	VOC emissions tpy	CO emissions tpy	NO_X emissions tpy	SO_2 emissions tpy	TSP emissions tpy	PM_{10} emissions tpy	$PM_{2.5}$ emissions tpy	TRS emissions tpy	H_2S emissions tpy	LEAD emissions tpy	CO_2e emissions tpy
BASELINE ACTUAL EMISSIONS (BAE) - JANUARY 2010 through DECEMBER 2011												
Kraft Mill NCG System[A]	Modified	104.64	20.48	202.11	1,904.59				17.50	3.89		
Kraft Mill Bleach Plant[B]	Retired*	64.04	214.50						1.18			
ClO2 Plant[B]	Retired	0.32										
Methanol Tank[B]	Retired	1.75										
No. 1 Paper Machine - Coated Paper[B]	Retired*	22.71				0.41	0.41	0.41				
No. 2 Paper Machine - Coated Paper[B]	Modified	36.57				0.65	0.65	0.65				
No. 2 Paper Machine - Brown Paper[C,D]	Modified	0.00				0.00	0.00	0.00	0.00			
No. 3 Paper Machine - Coated Paper[B]	Modified	54.30				0.97	0.97	0.97				
No. 3 Paper Machine - Linerboard[C,D]	Modified	0.00				0.00	0.00	0.00	0.00			
Pulp Dryer - Bleached[B]	Modified	23.87				0.69	0.69	0.69	1.18			
Pulp Dryer - Unbleached[C,D]	Modified	0.00				0.00	0.00	0.00	0.00			
No. 1 Coater - Natural Gas[B]	Retired	1.12	6.82	8.12	0.05	0.15	0.62	0.62			0.00	9,514
No. 2 Coater - Natural Gas[B]	Retired	1.83	11.17	13.29	0.08	0.25	1.01	1.01			0.00	15,576
No. 3 On-Machine Coater - Natural Gas[B]	Retired	1.93	11.80	14.04	0.08	0.27	1.07	1.07			0.00	16,453
Starch Silos[B]	Retired					0.83	0.51	0.19				
TMP[B]	Retired	191.80										
TMP Bleaching[B]	Retired	1.56										
Woodyard[B]	affected	4.17				97.01	14.55	0.97				
Power Boiler - Natural Gas[B]	Retired	0.19	1.16	3.87	0.01	0.03	0.10	0.10			0.00	1,618
Power Boiler - No. 6 Oil[E]	Retired	0.94	2.48	23.31	147.92	10.28	8.05	6.07			0.00	12,373
Wastewater System[F]	affected	529.35							129.52	5.91		
TOTAL BASELINE EMISSIONS		**1,041.1**	**268.4**	**264.7**	**2,052.7**	**111.6**	**28.6**	**12.8**	**149.4**	**9.8**	**0.00**	**55,535**

A - see 'Catawba NCG Factors' tab for development of emission factors.
B - see Title V Permit Renewal Inventory.
C - Particulate emissions from NCASI TB 884, Appendix E, Table E1, source PMCA10 (linerboard machine).
D - see 'Linerboard VOC_TRS Factors' tab for development of emission factors.
E - AP-42 emission factors based on 2012 average #6 fuel oil sulfur content of 1.90%. CY2012 is the earliest year available.
F - see 'WWTP Emission Factors' tab for development of emission factors.

Table 3
Projected Actual Emissions and Net Emissions Increase

Emission Unit	Basis	VOC emissions tpy	CO emissions tpy	NO_X emissions tpy	SO_2 emissions tpy	TSP emissions tpy	PM_{10} emissions tpy	$PM_{2.5}$ emissions tpy	TRS emissions tpy	H_2S emissions tpy	LEAD emissions tpy	CO_2e emissions tpy
PROJECTED ACTUAL EMISSIONS (PAE)												
Kraft Mill NCG System[A]	Modified	100.49	35.85	204.67	2,076.10				19.00	4.31		
Kraft Mill Bleach Plant[B]	Retired*	0.00	0.00						0.00			
ClO2 Plant[B]	Retired	0.00										
Methanol Tank[B]	Retired	0.00										
No. 1 Paper Machine - Coated Paper[B]	Retired*	0.00				0.00	0.00	0.00				
No. 2 Paper Machine - Coated Paper[B]	Modified	0.00				0.00	0.00	0.00				
No. 2 Paper Machine - Brown Paper[C,D]	Modified	82.46				0.21	0.21	0.21	3.27			
No. 3 Paper Machine - Coated Paper[B]	Modified	0.00				0.00	0.00	0.00				
No. 3 Paper Machine - Linerboard[C,D]	Modified	345.11				0.88	0.88	0.88	13.69			
Pulp Dryer - Bleached[B]	Modified	0.00				0.00	0.00	0.00	0.00			
Pulp Dryer - Unbleached[C,D]	Modified	93.40				0.24	0.24	0.24	3.70			
No. 1 Coater - Natural Gas[B]	Retired	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0
No. 2 Coater - Natural Gas[B]	Retired	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0
No. 3 On-Machine Coater - Natural Gas[B]	Retired	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0
Starch Silos[B]	Retired					0.00	0.00	0.00				
TMP[B]	Retired	0.00										
TMP Bleaching[B]	Retired	0.00										
Woodyard[B]	affected	4.21				105.00	15.75	1.05				
Power Boiler - Natural Gas[B]	Retired	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0
Power Boiler - No. 6 Oil[E]	Retired	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0
Wastewater System[F]	affected	448.40							118.26	5.42		
TOTAL PROJECTED EMISSIONS		**1,074.1**	**35.8**	**204.7**	**2,076.1**	**106.3**	**17.1**	**2.4**	**157.9**	**9.7**	**0.00**	**0**
NSR APPLICABILITY - BAE-to-PAE												
TOTAL BASELINE EMISSIONS		1,041.1	268.4	264.7	2,052.7	111.6	28.6	12.8	149.4	9.8	0.00	55,535
TOTAL PROJECTED EMISSIONS		1,074.1	35.8	204.7	2,076.1	106.3	17.1	2.4	157.9	9.7	0.00	0
NET EMISSION INCREASE		**33.0**	**(232.6)**	**(60.1)**	**23.4**	**(5.2)**	**(11.6)**	**(10.4)**	**8.5**	**(0.1)**	**(0.0)**	**(55,535)**
NSR Threshold		**40**	**100**	**40**	**40**	**25**	**15**	**10**	**10**	**10**	**0.6**	**75,000**

A - see 'Catawba NCG Factors' tab for development of emission factors.
B - see Title V Permit Renewal Inventory.
C - Particulate emissions from NCASI TB 884, Appendix E, Table E1, source PMCA10 (linerboard machine).
D - see 'Linerboard VOC_TRS Factors' tab for development of emission factors.
E - AP-42 emission factors based on 2012 average #6 fuel oil sulfur content of 1.90%. CY2012 is the earliest year available.
F - see 'WWTP Emission Factors' tab for development of emission factors.

4.5 South Carolina Regulation 61-62.5, Standard No. 7 – Prevention of Significant Deterioration Air Dispersion Modeling Requirements

Standard No. 7 also includes PSD air quality increments which apply to all increases and decreases in PSD pollutant emissions following the PSD minor source baseline date. In York County the minor source baseline dates are December 1, 1981 for PM_{10} and SO_2, April 5, 2001 for NO_X and March 3, 2017 for $PM_{2.5}$.

SCDHEC issued guidance concerning the PSD ambient air increments and air dispersion modeling demonstrations on February 27, 2017. In the guidance, SCDHEC suspended the requirement to model the change in PSD increment consumption. The new guidance requires facilities in counties where the minor source baseline date has been triggered to submit information to assess the consumption of the PSD increment.

As shown in Table 3 of Section 4.4, Project Columbia will result in a projected decrease in PM_{10}, $PM_{2.5}$, NO_X and SO_2 emissions from the Catawba mill. New-Indy believes this demonstrates the project will not interfere with attainment or maintenance of State or Federal Standards following the guidance of the Department issued on February 28, 2017.

4.6 South Carolina Regulation 61-62.5, Standard No. 8 – Toxic Air Pollutants (TAPs)

Standard No. 8 regulates emissions or air toxics compounds emitted from new and existing sources. The Standard does not apply to fuel burning sources which burn only virgin or specification used oil. Section I.D(1) of the rule exempts sources subject to a Federal Maximum Achievable Control Technology (MACT) Standard for hazardous air pollutants (HAPs). The Catawba Mill is subject to Federal MACT Standards for the pulp and paper source category (Subparts S and MM), industrial boilers (Subpart DDDDD) and reciprocating internal combustion engines (Subpart ZZZZ). Section I.D(2) exempts non-MACT sources after a facility-wide residual risk analysis is completed. USEPA published the results of facility-wide residual risk analyses for Subpart S sources on December 27, 2011, and for Subpart MM sources on December 30, 2017. The residual risk analyses completed by USEPA concluded there was no unacceptable risk from pulp and paper mills. Therefore, all sources at the Catawba mill are exempt from Standard No. 8 under both D(1) and D(2).

The Catawba mill emits two South Carolina TAPs which are not listed HAPs, hydrogen sulfide and methyl mercaptan. Both compounds are generated by the Kraft pulping process and are components of total reduced sulfur (TRS) gases that are contained in LVHC and HVLC gases. Section I.D(3) allows sources to request an exemption for non-HAPs controlled by MACT controls to reduce HAPs.

The Catawba mill treats the LVHC and HVLC gases by combustion in compliance with MACT Subpart S, and for the applicable emission units, Subpart BB. The Catawba mill also complies with the condensate collection and treatment requirements under MACT Subpart S. At the Catawba Mill, collected condensates are treated using the condensate steam stripper (ID 9801) to remove the HAPs and TRS

compounds. By treating the condensates using the steam stripper, the Catawba Mill reduces the HAP and TRS fugitive emissions from the wastewater treatment system (ID 2901) by removing the HAP and TRS from the condensates. For these reasons, New-Indy believes hydrogen sulfide and methyl mercaptan are exempt from compliance demonstrations under Standard No. 8.

4.7 South Carolina Regulation 61-62.70 - Title V Operating Permit Program

The Catawba Mill currently operates under Title V Operating Permit TV-2440-0005. New-Indy will submit revised Title V permit application forms for these sources within one year of startup of the modified equipment. The revised Title V application will address monitoring, recordkeeping, and reporting requirements.

4.8 40 CFR 60, Subpart BB – Standards of Performance for Kraft Pulp Mills and Subpart BBa – Standards for Performance of Kraft Pulp Mills Affected Sources for which Construction, Reconstruction, or Modification Commenced after May 23, 2013.

Subparts BB and BBa regulate emissions of particulate matter and TRS from affected sources at Kraft Pulp Mills.

The TRS emissions from the digester system and condensate stripper system are currently subject to Subpart BB. The mill complies with §60.283(a)(1)(iii) when TRS gases are combusted in the No. 1 or No. 2 Combination Boilers. The proposed changes require a capital investment and increase the hourly TRS emission rate, so this change meets the definition of a modification under §60.14(e)(2). Therefore, the digester system and condensate stripper system will become subject to the requirements of 40 CFR Part 60, Subpart BBa.

The existing oxygen delignification washers and bleach plant washers are not regulated by Subpart BB. As part of Project Columbia, the washers will be re-purposed as brownstock washers. Although these washers will be collected and controlled to meet the requirements for Part 63 NESHAPS, these washers are designed as low-flow drum displacement washers, which functionally are equivalent to diffusion washers, and are excluded from the definition of brownstock washers in §60.281a. The new refiners and new screw presses are not regulated by Subpart BBa.

The No. 1 evaporator set is not currently regulated by Subpart BB. The modifications to the No. 1 evaporator set will increase the evaporation rate and may increase the hourly TRS emissions. The No. 1 evaporator set will become subject to Subpart BBa following the modifications. The No. 1 evaporator set is currently collected in the existing low-volume high-concentration (LVHC) closed-vent system and incinerated in the No.1 and No. 2 Combination Boilers.

The TRS emissions from the digester system, condensate stripper system and No. 1 evaporator set are collected in the LVHC and (high-volume low-concentration) HVLC closed-vent systems meeting the requirements of §63.450 and will comply with §60.283a(a)(1)(a)(iii). The Catawba Mill will continue to

monitor the existing flame failure systems for each combination boiler and venting of the LVHC and HVLC closed-vent systems as required by 60.284a(d)(3)(iii) and currently utilized for monitoring compliance with Subpart BB.

The Catawba Mill will maintain records of excess emissions and malfunctions as required by 60.287a(b)(7) and (c), respectively. The mill will report periods of excess emissions and malfunctions as required by 60.288a(a) and (d), respectively. As defined in 60.284a(e)(1)(vi), periods of excess emissions less than one percent (1%) for the LVHC closed-vent systems (No. 1 evaporator set and condensate stripper system) and less than four percent (4%) for the HVLC closed-vent system (digester system) are not violations of 60.283a((a)(1)(iii).

4.9 40 CFR 63, Subpart S – National Emission Standards for Hazardous Air Pollutants from the Pulp and Paper Industry

Subpart S regulates emissions of hazardous air pollutants from pulping, bleaching, and condensate handling operations located at pulp and paper mills that are a major source of HAP. The Catawba Mill emits greater than 10 tons per year of individual HAP and greater than 25 tons per year of total HAP qualifying it as a major source for HAP emissions. The Catawba Mill is regulated by the Part 63 NESHAPs for the Pulp and Paper Industry (Subpart S).

The existing digester system (ID 5210), pulp washing system (ID 5230), oxygen delignification system (ID 5240), knotting and screening system (ID 5250), bleach plant (ID 5300) and condensate stripper system (ID 9800-9820) were constructed after 1993 and are new sources under this regulation. The existing turpentine recovery system (ID 5220) and three evaporator sets (ID 2400, 2500 and 5100) were constructed prior to 1993 and are regulated as existing sources.

The new refiners serve the same functional purpose as the existing knotting and screening system, to remove oversize material from the pulp slurry. The new screw presses serve the same functional purpose as the existing screen room washer, which performs the same function as a decker system to thicken the pulp slurry prior to high density pulp storage. The vents from the new refiners, new screw presses and re-purposed brownstock washers will be collected in the HVLC closed-vent system as required by 63.443(c).

There is no bleach plant in the future so the requirements of 63.445 will no longer apply after completion of the project.

The existing pulping process condensates generated in the digester system, turpentine recovery system, evaporator systems, and LVHC and HVLC closed collection systems comply with the collection requirements in §63.446(c)(3) and the treatment requirements in §63.446(e)(5) for mill which perform bleaching. Following Project Columbia, the pulping process condensates with be required to comply with the collection requirements in §63.446(c)(3) and the treatment requirements in §63.446(e)(4) for

mill which do not perform bleaching. The Catawba Mill plans to continue to comply with the requirements in 63.446 using the condensate steam stripper (ID 9801).

The No. 2 and No. 3 paper machines and the pulp dryer are considered papermaking systems under 40 CFR 63, Subpart S. During the development of Subpart S, EPA reviewed the HAP emissions from papermaking systems and determined no papermaking systems are operating with HAP controls. Therefore, the floor level of control for papermaking systems is no control, and EPA proposed no MACT standards for papermaking systems (63FR18525).

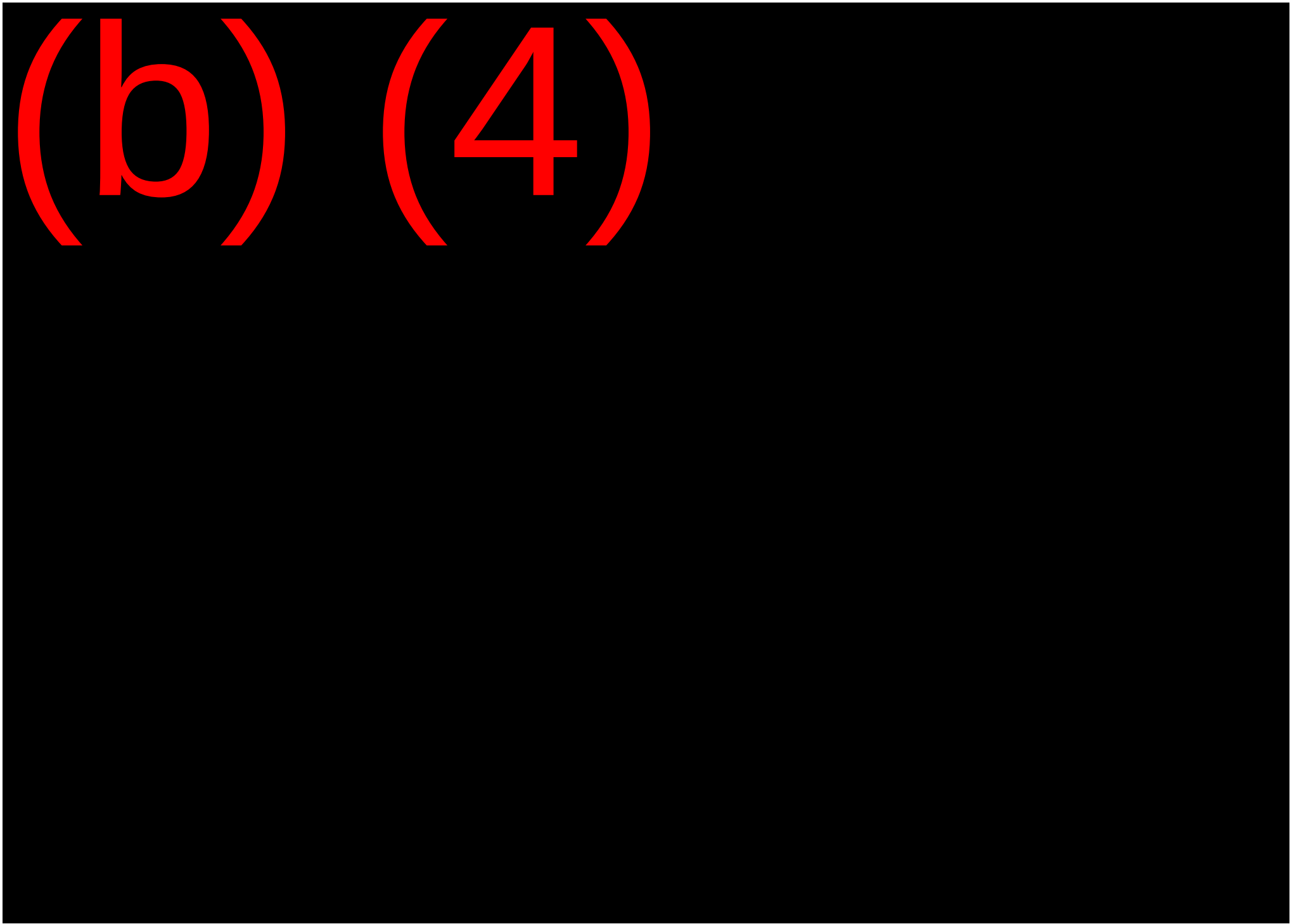
The Catawba Mill will continue to comply with the applicable requirements from Subpart S following the completion of this project. No changes to the current monitoring, recordkeeping, or reporting under Subpart S are required.

4.10 40 CFR 63, Subpart JJJJ – National Emission Standards for Hazardous Air Pollutants from Paper and Other Web Coating

Subpart JJJJ regulates emissions of hazardous air pollutants from paper coating operations. Following the completion of Project Columbia, the Catawba Mill will no longer perform paper coating and Subpart JJJJ will no longer apply.

4.11 40 CFR 51, Subpart BB—Data Requirements for Characterizing Air Quality for the Primary SO_2 NAAQS (a.k.a. SO_2 Data Requirements Rule or SO_2 DRR)

The Catawba Mill submitted facility-wide air dispersion modeling in November 2016 to comply with 40 CFR 51.1203(d). The projected actual SO_2 emissions following Project Columbia are expected to remain below the SO_2 emission rates included in the modeling analysis submitted in 2016. The Catawba Mill will continue to annually review the actual SO_2 emission rates against the 2016 model emission rates to determine if an updated modeling demonstration is necessary.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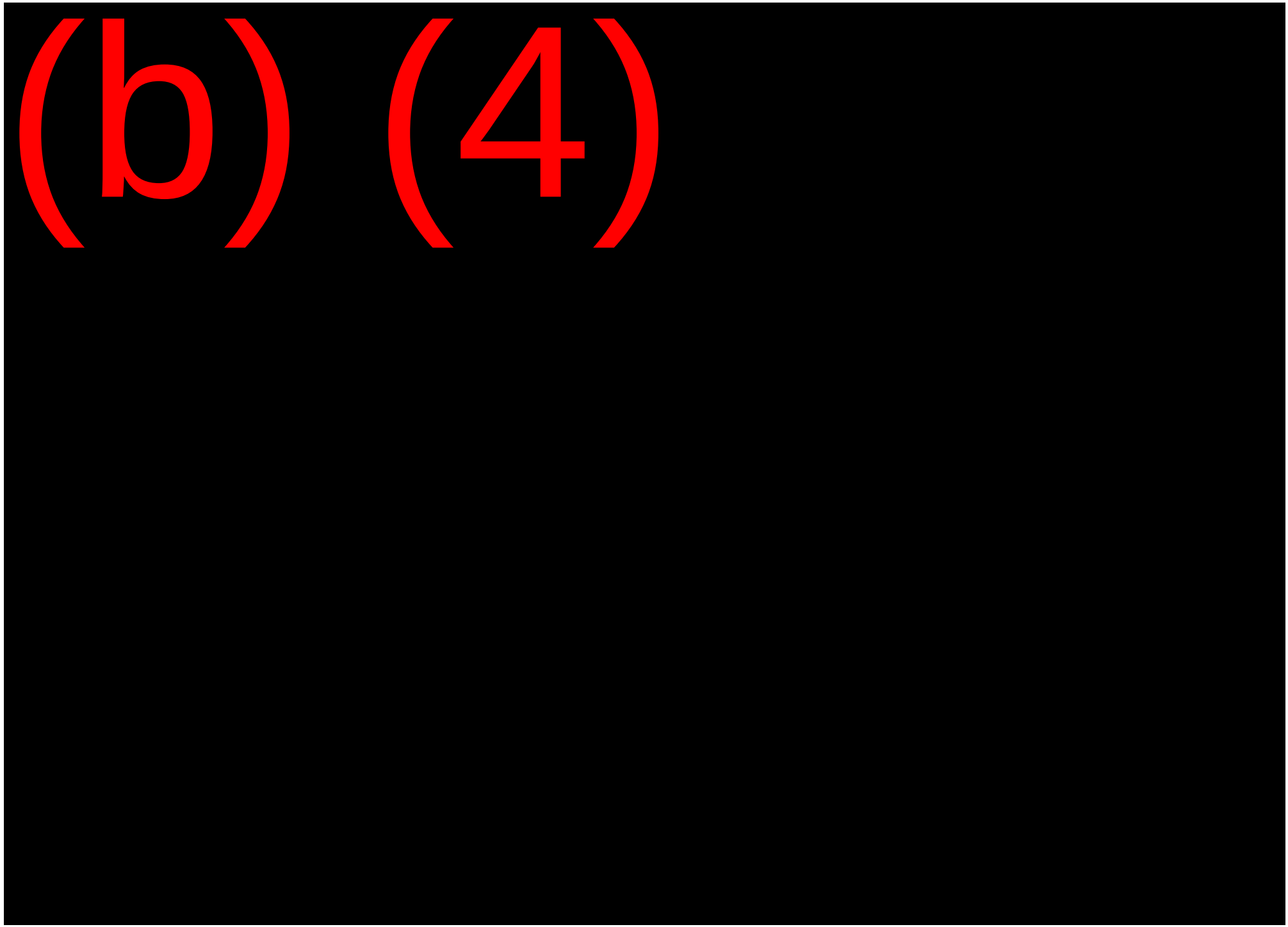
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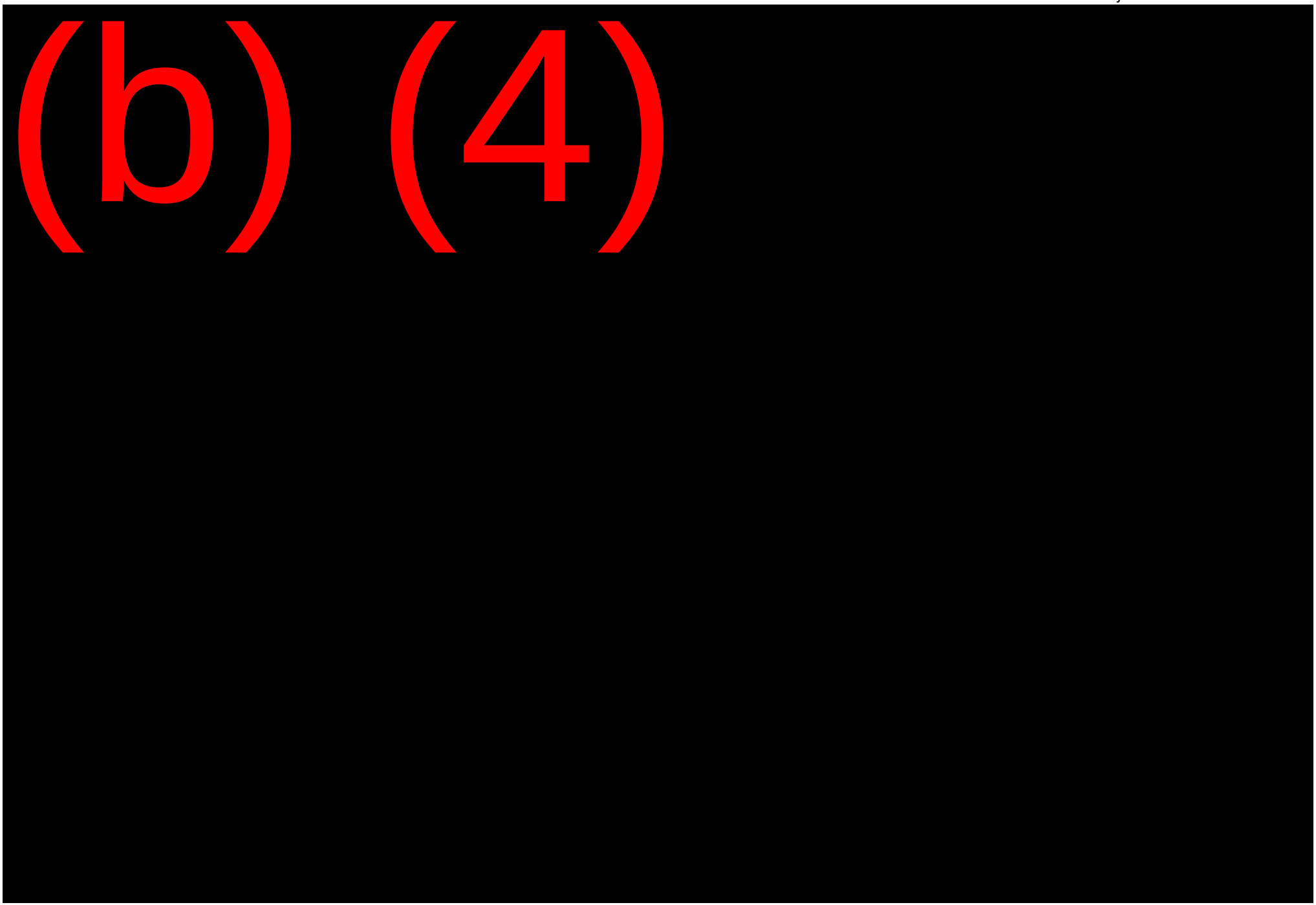
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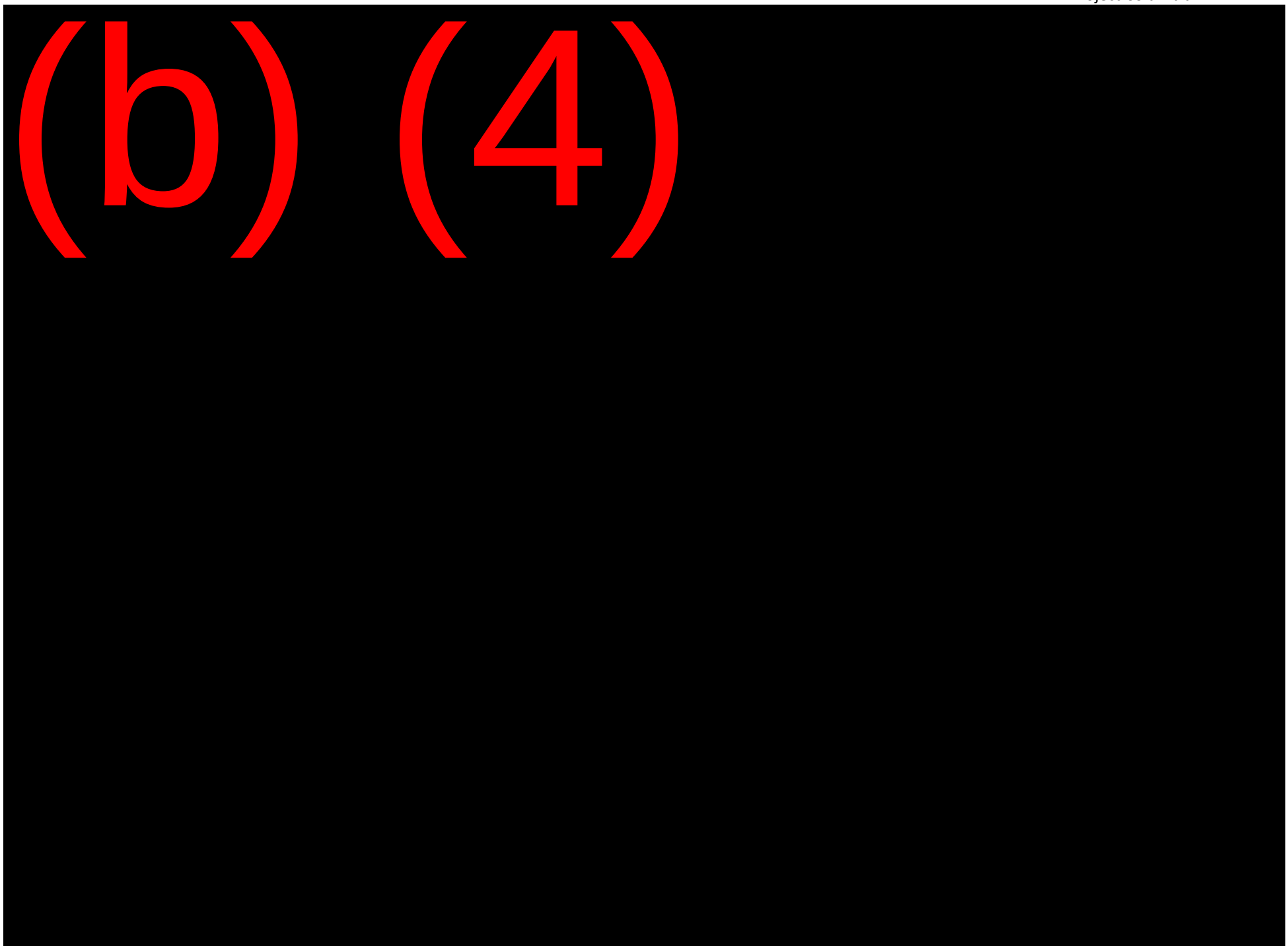
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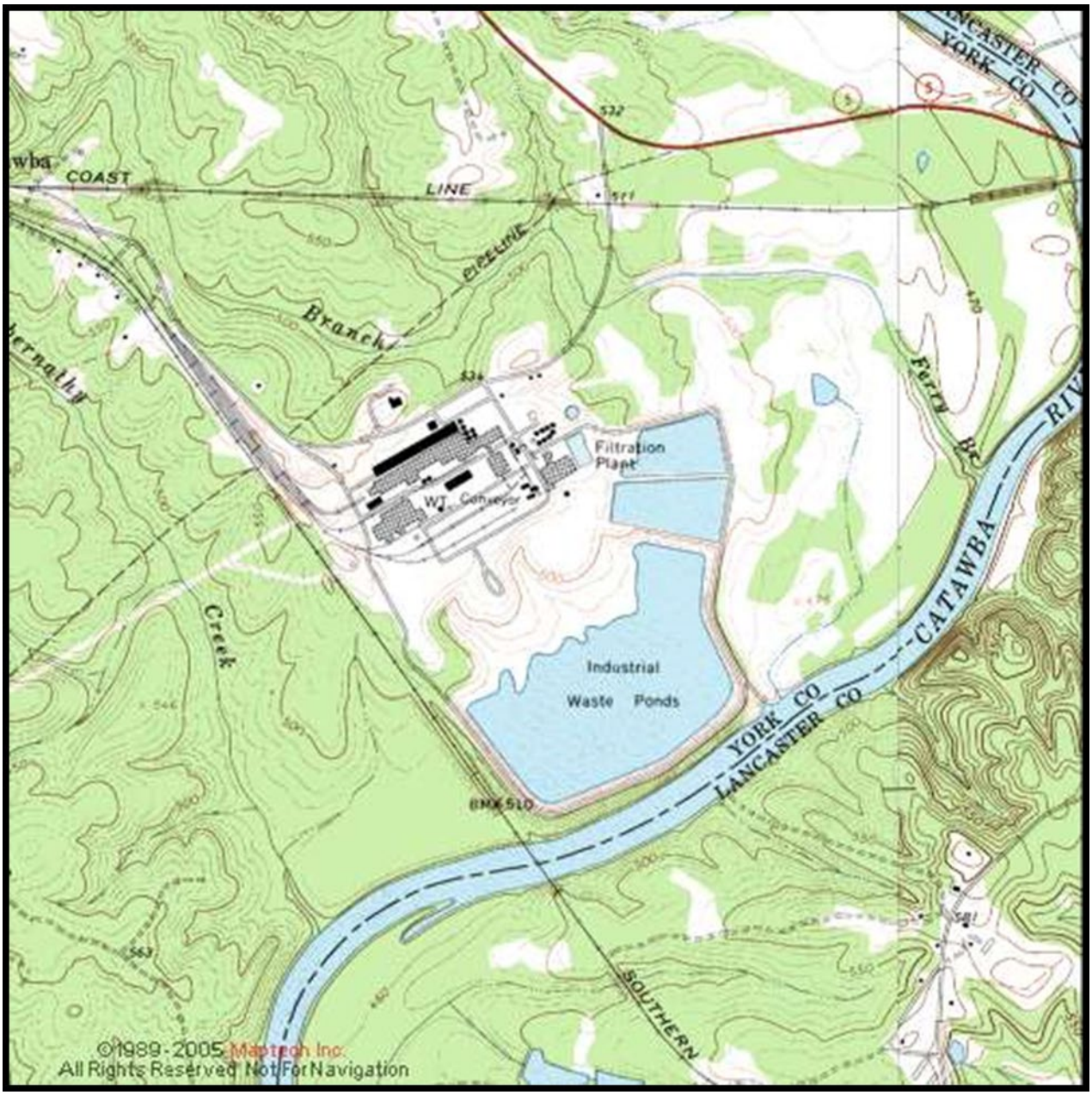
Figure 2
USGS MAP
New-Indy – Catawba Mill



ATTACHMENT A
APPLICATION FORMS

CONFIDENTIAL BUSINESS INFORMATION

Bureau of Air Quality
Expedited Review Request Instructions
Construction Permits

APPLICATION IDENTIFICATION		
Facility Name *(This should be the name used to identify the facility)* New-Indy Catawba LLC	SC Air Permit Number (8-digits only) *(Leave blank if one has never been assigned)* 2440 - 0005	Request Date June 7, 2019

PRIMARY AIR PERMIT CONTACT			
Title/Position: Environmental Engineer	Mr.	First Name: Mike	Last Name: Swanson
E-mail Addressmike.swanson@new-indycb.com		Phone No.: (803) 981-8010	Cell No.: ( ) -

SECONDARY AIR PERMIT CONTACT *(If the Department is unable to contact the primary air permit contact please provided a secondary contact.)*			
Title/Position:		First Name:	Last Name:
E-mail Address:		Phone No.:	Cell No.: ( ) -

Check One	Permit Type	Expedited Review Days*	Fee**
☒	Minor Source Construction Permit	30	$3,000
☐	Synthetic Minor Construction Permit	65	$4,000
☐	Prevention of Significant Deterioration (PSD) not impacting a Class I Area (no Class I modeling required)	120	$20,000
☐	Prevention of Significant Deterioration (PSD) Modification not impacting a Class I Area (no Class I modeling required) No BACT limit change but requires Public Notice	120	$5,000
☐	Prevention of Significant Deterioration (PSD) Modification not impacting a Class I Area (no Class I modeling required) Number of BACT Pollutants ☐ X$5,000 per BACT modification	120	Total Fee $ Maximum of $20,000
☐	Prevention of Significant Deterioration (PSD) impacting a Class I Area (Class I modeling required)	150	$25,000
☐	Prevention of Significant Deterioration (PSD) Modification impacting a Class I Area (Class I modeling required) No BACT limit change but requires Public Notice	150	$5,000
☐	Prevention of Significant Deterioration (PSD) Modification impacting a Class I Area (Class I modeling required) Number of BACT Pollutants ☐ X$5,000 per BACT modification	150	Total Fee $ Maximum of $25,000
☐	**Concrete** Minor Source Construction Permit Relocation Request	10	$1,500
☐	**Asphalt** Synthetic Minor Construction Permit Relocation Request	15	$3,500

Bureau of Air Quality

Expedited Review Request Instructions

Construction Permits

*All days above are calendar days, but exclude State holidays, and building closure dates due to severe weather or other emergencies. Expedited days for asphalt and concrete also exclude weekends.

**DO NOT SEND PAYMENT UNTIL THE APPLICATION HAS BEEN ACCEPTED INTO THE EXPEDITED PROGRAM. If chosen for expedited review, you will be notified by phone for verbal acceptance into the program. Fees must be paid within five business days of acceptance.

PRIMARY AIR PERMIT CONTACT SIGNATURE
I have read the most recent version of the Expedited Review Program Standard Operating Procedures and accept all of the terms and conditions within. I understand that it is my responsibility to ensure an application of the highest quality is submitted in a timely manner, and to address any requests for additional information by the deadline specified. I understand that submittal of this request form is not a guarantee that expedited review will be granted.

Signature of Primary Air Permit Contact Date

CONFIDENTIAL BUSINESS INFORMATION

Bureau of Air Quality
Construction Permit Application
Facility Information

FACILITY IDENTIFICATION	
SC Air Permit Number (8-digits only) *(Leave blank if one has never been assigned)* 2440 - 0005	Application Date June 7, 2019
Facility Name *(This should be the name used to identify the facility at the physical address listed below)* New-Indy Catawba LLC	Facility Federal Tax Identification Number *(Established by the U.S. Internal Revenue Service to identify a business entity)* 83-1904423

FACILITY PHYSICAL ADDRESS		
Physical Address: 5300 Cureton Ferry Road		County: York
City: Catawba	State: SC	Zip Code: 29704
Facility Coordinates *(Facility coordinates should be based at the front door or main entrance of the facility.)*		
Latitude: 34°50'37"N	Longitude: 80°53'25"W	☐ NAD27 *(North American Datum of 1927)* Or ☒ NAD83 *(North American Datum of 1983)*

CO-LOCATION DETERMINATION
Are there other facilities in close proximity that could be considered co-located? ☒ No ☐ Yes*
List potential co-located facilities, including air permit numbers if applicable:

**If yes, please submit co-location applicability determination details in an attachment to this application.*

COMMUNITY OUTREACH
What are the potential air issues and community concerns? Please provide a brief description of potential air issues and community concerns about the entire facility and/or specific project. Include how these issues and concerns are being addressed, if the community has been informed of the proposed construction project, and if so, how they have been informed. No issues or concerns. This project will lower air emissions for many pollutants.

FACILITY'S PRODUCTS / SERVICES	
Primary Products / Services *(List the primary product and/or service)* Linerboard/Pulp Manufacturing	
Primary SIC Code *(Standard Industrial Classification Codes)* 2631	Primary NAICS Code *(North American Industry Classification System)* 322130
Other Products / Services *(List any other products and/or services)*	
Other SIC Code(s):	Other NAICS Code(s):

AIR PERMIT FACILITY CONTACT
(Person at the facility who can answer technical questions about the facility and permit application.)

Bureau of Air Quality
Construction Permit Application
Facility Information

AIR PERMIT FACILITY CONTACT *(Person at the facility who can answer technical questions about the facility and permit application.)*			
Title/Position: Environmental Engineer	Salutation: Mr.	First Name: Mike	Last Name: Swanson
Mailing Address: PO Box 7			
City: Catawba		State: SC	Zip Code: 29704
E-mail Address: mike.swanson@new-indycb.com		Phone No.: (803) 981-8010	Cell No.:

The signed permit will be e-mailed to the designated Air Permit Contact. If additional individuals need copies of the permit, please provide their names and e-mail addresses.	
Name	**E-mail Address**
Steven Moore	steven.moore@aecom.com

CONFIDENTIAL INFORMATION / DATA
Does this application contain confidential information or data? ☐ No ☒ Yes*

If yes, include a sanitized version of the application for public review and **ONLY ONE COPY OF CONFIDENTIAL INFORMATION SHOULD BE SUBMITTED*

LIST OF FORMS INCLUDED *(Identify all forms included in the application package)*	
Form Name	**Included (Y/N)**
Expedited Review Request (DHEC Form 2212)	☒ Yes ☐ No
Equipment/Processes (DHEC Form 2567)	☒ Yes
Emissions (DHEC Form 2569)	☒ Yes
Regulatory Review (DHEC Form 2570)	☒ Yes
Emissions Point Information (DHEC Form 2573)	☒ Yes ☐ No (If No, Explain)

OWNER OR OPERATOR			
Title/Position: General Manager	Salutation: Mr.	First Name: David	Last Name: Clemmons
Mailing Address: PO Box 7			
City: Catawba		State: SC	Zip Code: 29704
E-mail Address: david.clemmons@new-indycb.com		Phone No.: 803-981-8376	Cell No.:
OWNER OR OPERATOR SIGNATURE			
I certify, to the best of my knowledge and belief, that no applicable standards and/or regulations will be contravened or violated. I certify that any application form, report, or compliance certification submitted in this permit application is true, accurate, and complete based on information and belief formed after reasonable inquiry. I understand that any statements and/or descriptions, which are found to be incorrect, may result in the immediate revocation of any permit issued for this application.			

dhec

Bureau of Air Quality
Construction Permit Application
Facility Information

Signature of Owner or Operator Date

PERSON AND/OR FIRM THAT PREPARED THIS APPLICATION *(If not the same person as the Professional Engineer who has reviewed and signed this application.)*			
Consulting Firm Name: AECOM			
Title/Position: Senior Project Manager	Salutation: Mr.	First Name: Steven	Last Name: Moore
Mailing Address: 10 Patewood Drive, Building 6, Suite 500			
City: Greenville		State: SC	Zip Code: 29615
E-mail Address: steven.moore@aecom.com		Phone No.: (864) 234-2297	Cell No.:
SC Professional Engineer License/Registration No. (if applicable):			

PROFESSIONAL ENGINEER INFORMATION			
Consulting Firm Name: AECOM			
Title/Position: PE	Salutation: Mr.	First Name: Joe	Last Name: Sullivan
Mailing Address: 1600 Perimeter Park Dr., Suite 400			
City: Morrisville		State: NC	Zip Code: 27560
E-mail Address: joe.sullivan@aecom.com		Phone No.: (919) 461-1237	Cell No.:
SC License/Registration No.: 18804			
PROFESSIONAL ENGINEER SIGNATURE			
I have placed my signature and seal on the engineering documents submitted, signifying that I have reviewed this construction permit application as it pertains to the requirements of *South Carolina Regulation 61-62, Air Pollution Control Regulations and Standards.*			

Signature of Professional Engineer Date

dhec

Bureau of Air Quality
Construction Permit Application
Equipment / Processes

APPLICATION IDENTIFICATION *(Please ensure that the information list in this table is the same on all of the forms and required information submitted in this construction permit application package.)*		
Facility Name *(This should be the name used to identify the facility)*	SC Air Permit Number (8-digits only) *(Leave blank if one has never been assigned)*	Application Date
New-Indy Catawba LLC	2440 - 0005	June 7, 2019

PROJECT DESCRIPTION
Brief Project Description (What, why, how, etc.): Modify Kraft pulp mill to manufacture unbleached pulp. Convert two paper machines and pulp dryer to brown paper. Increase Kraft pulp mill Kappa to increase pulp yield from same raw material inputs (wood and cooking liquor). Modify No.1 evaporator set to increase evaporation capacity. Retire one existing paper machine, TMP process, all paper coating equipment and No. 1 power boiler.

ATTACHMENTS	
☒ Process Flow Diagram	Location in Application: Figure 1
☒ Detailed Project Description	Location in Application: Section 2

EQUIPMENT / PROCESS INFORMATION

Equipment ID Process ID	Action	Equipment / Process Description	Maximum Design Capacity (Units)	Control Device ID(s)	Pollutants Controlled (Include CAS#)	Capture System Efficiency and Description	Emission Point ID(s)
5210	☐ Add ☐ Remove ☒ Modify ☐ Other	Continuous Digester System: Digester Chip Bin, Continuous Digester, Pressure Refiners A and B, Chip Feed System, Blow Tank, Steam Economizer and Reboiler	(b) (4)	5270, 2605, 3705	VOC, HAPs, TRS	HVLC Collection System	2610S1, 2610S2
5230	☐ Add ☐ Remove ☒ Modify ☐ Other	Pulp Washing System: Pressure Diffuser, Filtrate Tank, 3-stage Brownstock Washer Lines w/Filtrate Tanks (2 lines in parallel), repurposed No. 1 Post O2 Washer, No. 2 Post O2 Washer, D0 Washer, D1 Washer, D2 Washer, Eop Washer), Brown Stock Liquor Surge Tank		5270, 2605, 3705	VOC, HAPs, TRS	HVLC Collection System	2610S1, 2610S2

dhec

Bureau of Air Quality
Construction Permit Application
Equipment / Processes

EQUIPMENT / PROCESS INFORMATION							
Equipment ID Process ID	Action	Equipment / Process Description	Maximum Design Capacity (Units)	Control Device ID(s)	Pollutants Controlled (Include CAS#)	Capture System Efficiency and Description	Emission Point ID(s)
5240	☐ Add ☒ Remove ☐ Modify ☐ Other	Oxygen Delignification System: No. 1 O2 Reactor, Blow Tube, No. 1 Post O2 Washer, No. 1 Post O2 Filtrate Tank, No. 2 O2 Reactor, Blow Tube, No. 2 Post O2 Washer, No. 2 Post O2 Filtrate Tank, Post O2 Surge Tank, No. 1B O2 Reactor	(b) (4)	5270, 2605, 3705	VOC, HAPs, TRS	HVLC Collection System	2610S1, 2610S2
5250	☐ Add ☒ Remove ☐ Modify ☐ Other	Knotting and Screening System: HD Tank, Primary Knotters (2), Secondary Knotters (2), No. 1 Primary Screen, No. 2 Primary Screen, Secondary Screen, Tertiary Screen, Quaternary Screen, Cleaner, Shive Thickener, Screen Room Filtrate Tank, Screen Room Washer		5270, 2605, 3705	VOC, HAPs, TRS	HVLC Collection System	2610S1, 2610S2
5255	☒ Add ☐ Remove ☐ Modify ☐ Other	Pulp Refining and Washing: Washed Stock Storage Tank, Refiners (2), Screw Presses (2), Screw Press Filtrate Tank, Filtrate Screen		5270, 2605, 3705	VOC, HAPs, TRS	HVLC Collection System	2610S1, 2610S2
5300	☐ Add ☒ Remove ☐ Modify ☐ Other	Four Stage DOEOPD1D2 Bleaching System: DO Tower and Washer; EOP Reactor, Washer and Filtrate Tank; D1 Tower, Washer, and Filtrate Tank; D2 Tower, Washer and Filtrate Tank; Acid Sewer; Alkaline Sewer		5300C	CL_2, Chlorinated HAPs	Bleaching System Scrubber	5300S

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Bureau of Air Quality

Construction Permit Application

Equipment / Processes

EQUIPMENT / PROCESS INFORMATION							
Equipment ID Process ID	Action	Equipment / Process Description	Maximum Design Capacity (Units)	Control Device ID(s)	Pollutants Controlled (Include CAS#)	Capture System Efficiency and Description	Emission Point ID(s)
1790	☐ Add ☒ Remove ☐ Modify ☐ Other	Chlorine Dioxide Generator: Generator/Crystallizer/Reboiler, Saltcake Slurry Tank, Hydroclone and Saltcake Filter, Generator Dump Tank, Indirect Cooling Tower, ClO2 Adsorption Tower, Barometric Condenser, Seal Pot, ClO2 Storage Tanks (212,000 gallons), Filtrate Separation System	(b) (4)	1790C, 1790Ca	CL_2	Chlorine Dioxide Generator Scrubber, chilled water and white liquor and Chlorine Dioxide Generator Tail Gas Scrubber, weak wash and white liquor	1790S
4400	☐ Add ☒ Remove ☐ Modify ☐ Other	TMP Lines 1-6 (The following equipment is shared): Chip Conveyor, Chip Washing System: Chip Washer and Screens (3 sets), 3 Chip Storage Silos, Pin Chip Screen Cyclone, 2 Chip Surge Bins (7,481 gallons, ea.), Heat and Turpentine Recovery System: Flash Tanks, Surge Tanks, 3 Liquid Phase Separators (1,520 gallons, each), Condensers, 2,880-gallon Decanter		None	NA	NA	4400
4400	☐ Add ☒ Remove ☐ Modify ☐ Other	TMP Line 1-3: Primary, Secondary, and Tertiary Refiner System, Peroxide Towers, Neutralization Chests, Screening and Cleaning Systems, Rejects Refiner Systems, Press System, Decker System, Sodium Hydrosulfite Bleaching System		None	NA	NA	4400

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Bureau of Air Quality
Construction Permit Application
Equipment / Processes

EQUIPMENT / PROCESS INFORMATION							
Equipment ID Process ID	Action	Equipment / Process Description	Maximum Design Capacity (Units)	Control Device ID(s)	Pollutants Controlled (Include CAS#)	Capture System Efficiency and Description	Emission Point ID(s)
4400	☐ Add ☒ Remove ☐ Modify ☐ Other	TMP Lines 4-6: Primary, Secondary, and Tertiary Refiner System, Screening and Cleaning Systems, Rejects Refiner Systems, Press System, Decker System, Sodium Hydrosulfite Bleaching System	(b) (4)	None	NA	NA	4400
4400	☐ Add ☒ Remove ☐ Modify ☐ Other	Hydrogen Peroxide Bleaching System		None	NA	NA	4400
2000	☐ Add ☒ Remove ☐ Modify ☐ Other	No. 1 Paper Machine: Cleaner System, Deculator System, Precondenser System, Vacuum Pump System, Screen System, Mix Tub, Headbox System, Forming Wire, Vacuum Blower, Vacuum Trench, Save-All System, Presses, Separators, Press Pulper, Dryer Systems, Dryer Pulper Calendar, Dry End Pulper, Reel, Slurry Mix Tanks, Mix Tanks		None	NA	NA	2000
2005	☐ Add ☒ Remove ☐ Modify ☐ Other	No. 1 Paper Machine Rereeler and Trim Pulper		None	NA	NA	2000
2010	☐ Add ☒ Remove ☐ Modify ☐ Other	No. 1 Coater Dryer, fired on Natural Gas, Propane, or Kerosene: Coater System, Coating Dryer, Screen/Filters, Reel, and Coated Broke Pulper		None	NA	NA	2000

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Construction Permit Application

Equipment / Processes

EQUIPMENT / PROCESS INFORMATION							
Equipment ID Process ID	Action	Equipment / Process Description	Maximum Design Capacity (Units)	Control Device ID(s)	Pollutants Controlled (Include CAS#)	Capture System Efficiency and Description	Emission Point ID(s)
4600	☐ Add ☐ Remove ☒ Modify ☐ Other	No.2 Paper Machine: Cleaner System, Deculator System, Precondenser, Vacuum Pump System, Screen System, Headbox System Forming Wire, Vacuum Blower, Vacuum Trench, Save-All System, Press System, Press Pulper, Dryer Systems, Dryer Pulper, Calendar, Dry End Pulper, Reel, Slurry Mix Tanks, Mix Tanks	(b) (4)	None	NA	NA	4600
4605	☐ Add ☐ Remove ☒ Modify ☐ Other	No. 2 Paper Machine Rereeler and Trim Pulper		None	NA	NA	4600
4610	☐ Add ☒ Remove ☐ Modify ☐ Other	No. 2 Coater Dryer, fired on Natural Gas, Propane or Kerosene: Coating System, Coating Dryer, Screens/Filters, Reel, and Coated Broke Pulper		None	NA	NA	4600
4100	☐ Add ☐ Remove ☒ Modify ☐ Other	No. 3 Linerboard Machine: Mixed Stock Chest, Stock Refining System, Cleaner System, Deculator System, Precondenser, Mixing Silo, Vacuum Pump System, Vacuum Trench, Screen System, Headbox System, Mix Eliminator, Vacuum Blowers, Forming Wire, Press System, Press Pulper, Dryer Systems, Economizer, Dry End Pulper, Steam Dryer, Reel, Reel Pulper, Winder, Trim Pulper		None	NA	NA	4100

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Construction Permit Application

Equipment / Processes

EQUIPMENT / PROCESS INFORMATION							
Equipment ID Process ID	Action	Equipment / Process Description	Maximum Design Capacity (Units)	Control Device ID(s)	Pollutants Controlled (Include CAS#)	Capture System Efficiency and Description	Emission Point ID(s)
4110	☐ Add ☒ Remove ☐ Modify ☐ Other	Air Flotation Dryer equipped with Low NOx burners (as BACT), fired on Natural Gas, Propane, or Kerosene	(b) (4)	None	NA	NA	4110
4120	☐ Add ☒ Remove ☐ Modify ☐ Other	Infrared Dryer, fired on Natural Gas, Propane, or Kerosene		None	NA	NA	4120
4130	☐ Add ☒ Remove ☐ Modify ☐ Other	Hot Oil Heating System, fired on Natural Gas, Propane, or Kerosene		None	NA	NA	4130
2100	☐ Add ☐ Remove ☒ Modify ☐ Other	Pulp Dryer: Screen System, Decker, Headbox System, Cylinder Mold, Hood Exhaust System, Vacuum System, Press System, Press Pulper, Dryers, Economizer, Dry End Pulper, Steam heated Booster Oven on dry end, Cutter, Stacker		None	NA	NA	2100
9700	☐ Add ☒ Remove ☐ Modify ☐ Other	Four – Starch Silos, Slurry Mix Tanks, Starch Cookers, Flash Tank, Mix Tanks		B-2000	PM, PM10, PM2.5	Two – Starch Silo Baghouses	B-2000
9701A, 9701B, 9702, 9703, 9704	☐ Add ☒ Remove ☐ Modify ☐ Other	1,400 Gallon Slurry Tank, 1,400 Gallon Slurry Tank, Starch Cooker, Flash Tank, 2,900 Gallon Paste Tank		None	NA	NA	9701A, 9701B, 9702, 9703, 9704

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Construction Permit Application

Equipment / Processes

EQUIPMENT / PROCESS INFORMATION							
Equipment ID Process ID	Action	Equipment / Process Description	Maximum Design Capacity (Units)	Control Device ID(s)	Pollutants Controlled (Include CAS#)	Capture System Efficiency and Description	Emission Point ID(s)
2400	☐ Add ☐ Remove ☒ Modify ☐ Other	No. 1 Multi-Effect Evaporator Set with concentrator	(b) (4)	5260, 5260C, 2605, 3705	VOC, HAPs, TRS	LVHC Collection System	2610S1, 2610S2
2550	☐ Add ☒ Remove ☐ Modify ☐ Other	342–375 million BTU/hr Power Boiler, fired on natural gas, No. 6 fuel oil; 225,000 lb/hr maximum steaming rate on any fuel •342 million BTU/hr – No. 6 fuel oil; •375 million BTU/hr – natural gas		None	NA	NA	2550S
9801	☐ Add ☐ Remove ☒ Modify ☐ Other	Condensate Steam Stripper		9820, 2605, 3705	VOC, HAPs, TRS	Stripper Off Gases (SOGs) Collection System	2610S1, 2610S2
M10-223	☐ Add ☒ Remove ☐ Modify ☐ Other	Methanol Tank		None	NA	NA	1100
1299	☐ Add ☐ Remove ☒ Modify ☐ Other	Twelve – HD Pulp Storage Tanks		None	NA	NA	1299

CONTROL DEVICE INFORMATION					
Control Device ID	Action	Control Device Description	Maximum Design Capacity (Units)	Inherent/Required/Voluntary (Explain)	Destruction/Removal Efficiency Determination
5300C	☐ Add ☒ Remove ☐ Modify ☐ Other	Bleaching System Scrubber	(b) (4)	Source being retired, control device no longer required for compliance	Source being retired, control device no longer required for compliance

Bureau of Air Quality

Construction Permit Application

Equipment / Processes

CONTROL DEVICE INFORMATION					
Control Device ID	Action	Control Device Description	Maximum Design Capacity (Units)	Inherent/Required/Voluntary (Explain)	Destruction/Removal Efficiency Determination
1790C, 1790Ca	☐ Add ☒ Remove ☐ Modify ☐ Other	Chlorine Dioxide Generator Scrubber, chilled water and white liquor and Chlorine Dioxide Generator Tail Gas Scrubber, weak wash and white liquor	(b) (4)	Source being retired, control device no longer required for compliance	Source being retired, control device no longer required for compliance
B-2000	☐ Add ☒ Remove ☐ Modify ☐ Other	Two – Starch Silo Baghouses	NA	Source being retired, control device no longer required for compliance	Source being retired, control device no longer required for compliance
5260	☐ Add ☐ Remove ☐ Modify ☒ Other	LVHC Collection System	N/A	Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S	99.9%
5260C	☐ Add ☐ Remove ☐ Modify ☒ Other	LVHC System Caustic Scrubber	N/A	Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S	50%
5270	☐ Add ☐ Remove ☐ Modify ☒ Other	HVLC Collection System	N/A	Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S	99.9%
9820	☐ Add ☐ Remove ☐ Modify ☒ Other	Stripper Off Gases (SOGs) Collection System	N/A	Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S	99.9%
2605	☐ Add ☐ Remove ☐ Modify ☒ Other	No. 1 Combination Boiler	N/A	Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S	98%

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CONTROL DEVICE INFORMATION					
Control Device ID	Action	Control Device Description	Maximum Design Capacity (Units)	Inherent/Required/Voluntary (Explain)	Destruction/Removal Efficiency Determination
3705	☐ Add ☐ Remove ☐ Modify ☒ Other	No. 2 Combination Boiler	N/A	Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S	98%

Bureau of Air Quality

Construction Permit Application

Equipment / Processes

RAW MATERIAL AND PRODUCT INFORMATION			
Equipment ID Process ID Control Device ID	Raw Material(s)	Product(s)	Fuels Combusted
5210-5255	Wood, cooking liquor	Unbleached pulp	none
4600	Unbleached pulp	Linerboard	none
4100	Unbleached pulp	Uncoated Lightweight Brown Paper	none
2100	Unbleached pulp	Unbleached Market Pulp	none
2400	Weak Black Liquor	Strong Black Liquor	none
9801	Foul Condensate	Clean Condensate	none

MONITORING AND REPORTING INFORMATION					
Equipment ID Process ID Control Device ID	Pollutant(s)/Parameter(s) Monitored	Monitoring Frequency	Reporting Frequency	Monitoring/Reporting Basis	Averaging Period(s)
5210-5255	LVHC and HVLC Venting	Continuous	Semi-annual	NSPS Subpart BB MACT Subpart S	5-minutes
4600	None	NA	NA	NA	NA
4100	None	NA	NA	NA	NA
2100	None	NA	NA	NA	NA
2400	LVHC Venting	Continuous	Semi-annual	NSPS Subpart BB MACT Subpart S	5-minutes
9801	SOG Venting	Continuous	Semi-annual	NSPS Subpart BB MACT Subpart S	5-minutes
9801	Condensate Collection and Treatment	Continuous	Semi-annual	MACT Subpart S	15-days

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Bureau of Air Quality
Construction Permit Application
Emissions

APPLICATION IDENTIFICATION *(Please ensure that the information list in this table is the same on all of the forms and required information submitted in this construction permit application package.)*		
Facility Name *(This should be the name used to identify the facility)*	SC Air Permit Number (8-digits only) *(Leave blank if one has never been assigned)*	Application Date
New-Indy Catawba LLC	2440 - 0005	June 7, 2019

ATTACHMENTS *(Check all the appropriate checkboxes if included as an attachment)*	
☒ Sample Calculations, Emission Factors Used, etc.	☒ Detailed Explanation of Assumptions, Bottlenecks, etc.
☒ Supporting Information: Manufacturer's Data, etc.	☐ Source Test Information
☐ Details on Limits Being Taken for PTE Emissions	☒ NSR Analysis

SUMMARY OF PROJECTED CHANGE IN FACILITY WIDE POTENTIAL EMISSIONS
(Calculated at maximum design capacity.)

Pollutants	Emission Rates Prior to Construction / Modification (tons/year)			Emission Rates After Construction / Modification (tons/year)		
	Uncontrolled	Controlled	PTE	Uncontrolled	Controlled	PTE
Particulate Matter (PM)	111,415	1,986	NA	111,296	1,867	NA
Particulate Matter <10 Microns (PM_{10})	77,797	1,252	NA	77,639	1,094	NA
Particulate Matter <2.5 Microns ($PM_{2.5}$)	65,449	993	NA	65,319	862	NA
Sulfur Dioxide (SO_2)	24,145	22,682	NA	20,725	19,206	NA
Nitrogen Oxides (NO_x)	3,630	3,630	NA	3,064	3,064	NA
Carbon Monoxide (CO)	3,601	3,601	NA	3,177	3,177	NA
Volatile Organic Compounds (VOC)	8,414	1,903	NA	7,030	1,696	NA
Lead (Pb)	14.3	14.3	NA	14.3	14.3	NA
Highest HAP Prior to Construction (CAS #: 67561)	6,955	917	NA	4,205	792	NA
Highest HAP After Construction (CAS #: 67561)	6,955	917	NA	4,205	792	NA
Total HAP Emissions*	7,331	1,129	NA	4,517	974	NA

Include emissions from exempt equipment and emission increases from process changes that were exempt from construction permits.
(*All HAP emitted from the various equipment or processes must be listed in the appropriate "Potential Emission Rates at Maximum Design Capacity" Table)

Bureau of Air Quality

Construction Permit Application

Emissions

Bureau of Air Quality

Construction Permit Application

Emissions

POTENTIAL EMISSION RATES AT MAXIMUM DESIGN CAPACITY									
Equipment ID / Process ID	Emission Point ID	Pollutants (Include CAS #)	Calculation Methods / Limits Taken / Other Comments	Uncontrolled		Controlled		PTE	
				lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
5260, 5270, 9820	2610S1, 2610S2	SO2	See Attachment B	1,136	4,977	NA	NA	NA	NA
5260, 5270, 9820	2610S1, 2610S2	NOX	See Attachment B	46.7	205	NA	NA	NA	NA
5260, 5270, 9820	2610S1, 2610S2	CO	See Attachment B	8.20	35.9	NA	NA	NA	NA
5260, 5270, 9820	2610S1, 2610S2	VOC	See Attachment B	1,147	5,024	22.9	101	NA	NA
5260, 5270, 9820	2610S1, 2610S2	TRS	See Attachment B	535	2,321	4.3	19.0	NA	NA
5260, 5270, 9820	2610S1, 2610S2	H2S	See Attachment B	141	619	1.0	4.3	NA	NA
4600	4600	PM	See Attachment B	0.048	0.21	NA	NA	NA	NA
4600	4600	PM_{10}	See Attachment B	0.048	0.21	NA	NA	NA	NA
4600	4600	$PM_{2.5}$	See Attachment B	0.048	0.21	NA	NA	NA	NA
4600	4600	VOC	See Attachment B	18.8	82.4	NA	NA	NA	NA
4600	4600	TRS	See Attachment B	0.8	3.3	NA	NA	NA	NA
4100	4100	PM	See Attachment B	0.20	0.88	NA	NA	NA	NA
4100	4100	PM_{10}	See Attachment B	0.20	0.88	NA	NA	NA	NA
4100	4100	$PM_{2.5}$	See Attachment B	0.20	0.88	NA	NA	NA	NA
4100	4100	VOC	See Attachment B	78.8	345	NA	NA	NA	NA
4100	4100	TRS	See Attachment B	3.1	13.7	NA	NA	NA	NA
2100	2100	PM	See Attachment B	0.054	0.24	NA	NA	NA	NA
2100	2100	PM_{10}	See Attachment B	0.054	0.24	NA	NA	NA	NA
2100	2100	$PM_{2.5}$	See Attachment B	0.054	0.24	NA	NA	NA	NA
2100	2100	VOC	See Attachment B	21.3	93.3	NA	NA	NA	NA
2100	2100	TRS	See Attachment B	0.8	3.7	NA	NA	NA	NA

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Bureau of Air Quality
Construction Permit Application
Regulatory Review

APPLICATION IDENTIFICATION *(Please ensure that the information list in this table is the same on all of the forms and required information submitted in this construction permit application package.)*		
Facility Name *(This should be the name used to identify the facility)* New-Indy Catawba LLC	SC Air Permit Number (8-digits only) *(Leave blank if one has never been assigned)* 2440 - 0005	Application Date June 7, 2019

STATE AND FEDERAL AIR POLLUTION CONTROL REGULATIONS AND STANDARDS
(If not listed below add any additional regulations that are triggered.)

Regulation	Applicable		Include all limits, work practices, monitoring, record keeping, etc.		
	Yes	No	Explain Applicability Determination	List the specific limitations and/or requirements that apply.	How will compliance be demonstrated?
Regulation 61-62.1, Section II(E) Synthetic Minor Construction Permits	☐	☒	No operating restrictions are being requested		
Regulation 61-62.1, Section II(G) Conditional Major Operating Permits	☐	☒	Facility is Title V source		
Regulation 61-62.5, Standard No. 1 Emissions from Fuel Burning Operations	☐	☒	applicable to fuel burning operations		
Regulation 61-62.5, Standard No. 2 Ambient Air Quality Standards	☒	☐	applies to all sources	none	modeling demonstration not required, future allowable emissions (tpy) lower than current allowable emissions (tpy)
Regulation 61-62.5, Standard No. 3 Waste Combustion and Reduction	☐	☒	MACT control devices exempt		
Regulation 61-62.5, Standard No. 4 Emissions from Process Industries	☒	☐	applicable to process sources	Process weight rule	Emission factors
Regulation 61-62.5, Standard No. 5 Volatile Organic Compounds	☐	☒	not a regulated activity		
Regulation 61-62.5, Standard No. 5.2 Control of Oxides of Nitrogen	☐	☒	no burner modifications		
Regulation 61-62.5, Standard No. 7 Prevention of Significant Deterioration*	☐	☒	Modification is not subject to PSD		

Bureau of Air Quality

Construction Permit Application

Regulatory Review

STATE AND FEDERAL AIR POLLUTION CONTROL REGULATIONS AND STANDARDS *(If not listed below add any additional regulations that are triggered.)*					
Regulation	Applicable		Include all limits, work practices, monitoring, record keeping, etc.		
	Yes	No	Explain Applicability Determination	List the specific limitations and/or requirements that apply.	How will compliance be demonstrated?
Regulation 61-62.5, Standard No. 7.1 Nonattainment New Source Review*	☐	☒	attainment area		
Regulation 61-62.5, Standard No. 8 Toxic Air Pollutants	☐	☒	All sources subject to MACT or included in Subpart S RTR		
Regulation 61-62.6 Control of Fugitive Particulate Matter	☐	☒	applies to fugitive dust sources		
Regulation 61-62.68 Chemical Accident Prevention Provisions	☐	☒	not a regulated activity		
Regulation 61-62.70 Title V Operating Permit Program	☒	☐	Facility has Title V operating permit		
40 CFR Part 64 - Compliance Assurance Monitoring (CAM)	☐	☒	MACT Subpart S sources		
40 CFR 60 Subpart A - General Provisions	☒	☐	applies to Subpart BB/BBa		
40 CFR 60 Subpart BB/BBa – Kraft Pulp Mill NSPS	☒	☐	applies to Kraft pulp mill	TRS emission limits	Flame Failure System / Venting
40 CFR 61 Subpart A - General Provisions	☐	☒	not a regulated activity		
40 CFR 63 Subpart A - General Provisions	☒	☐	applies to Subparts S		
40 CFR 63 Subpart S – Pulp and Paper MACT	☒	☐	applies to Kraft pulp mill	HAP emission limits	Flame Failure System / Venting Stripper Steam Ratio

* Green House Gas emissions must be quantified if these regulations are triggered.

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Bureau of Air Quality
Emission Point Information

A. APPLICATION IDENTIFICATION	
1. Facility Name: New-Indy Catawba LLC	
2. SC Air Permit Number (if known; 8-digits only): 2440 - 0005	3. Application Date: June 7, 2019
4. Project Description: Modify Kraft pulp mill to manufacture unbleached pulp. Convert two paper machines and pulp dryer to brown paper. Increase Kraft pulp mill Kappa to increase pulp yield from same raw material inputs (wood and cooking liquor). Modify No.1 evaporator set to increase evaporation capacity. Retire one existing paper machine, TMP process, all paper coating equipment and No. 1 power boiler.	

B. FACILITY INFORMATION	
1. Is your company a Small Business? ☐ Yes ☒ No	2. If a Small Business or small government facility, is Bureau assistance being requested? ☐ Yes ☒ No
3. Are other facilities collocated for air compliance? ☐ Yes ☒ No	4. If Yes, provide permit numbers of collocated facilities:

C. AIR CONTACT			
Consulting Firm Name (if applicable):			
Title/Position: Environmental Engineer	Salutation: Mr.	First Name: Mike	Last Name: Swanson
Mailing Address: P.O. Box 7			
City: Catawba		State: SC	Zip Code: 29704
E-mail Address: mike.swanson@new-indycb.com		Phone No.: (803) 981-8010	Cell No.:

D. EMISSION POINT DISPERSION PARAMETERS
Source data requirements are based on the appropriate source classification. Each emission point is classified as a point, area, volume, or flare source. Contact the Bureau of Air Quality for clarification of data requirements. Include sources on a scaled site map. Also, a picture of area or volume sources would be helpful but is not required. A user generated document or spreadsheet may be substituted in lieu of this form provided all of the required emission point parameters are submitted in the same order, units, etc. as presented in these tables.
Abbreviations / Units of Measure: UTM = Universal Transverse Mercator; °N = Degrees North; °W = Degrees West; m = meters; AGL = Above Ground Level; ft = feet; ft/s = feet per second; ° = Degrees; °F = Degrees Fahrenheit

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Bureau of Air Quality
Emission Point Information

E. POINT SOURCE DATA
(Point sources such as stacks, chimneys, exhaust fans, and vents.)

Emission Point ID	Description/Name	Point Source Coordinates Projection:				Release Height AGL (ft)	Temp. (°F)	Exit Velocity (ft/s)	Inside Diameter (ft)	Discharge Orientation	Rain Cap? (Y/N)	Distance To Nearest Property Boundary (ft)	Building		
		UTM E (m)	UTM N (m)	Lat (°N)	Long (°W)								Height (ft)	Length (ft)	Width (ft)
2610S1	NCG Incineration – Combination Boiler 1	509990	3855460			228	363.8	47.2	10	Vertical	No	1,100	148	36	42

F. AREA SOURCE DATA
(Area sources such as storage piles, and other sources that have low level or ground level releases with no plumes.)

Emission Point ID	Description/Name	Area Source Coordinates Projection:				Release Height AGL (ft)	Easterly Length (ft)	Northerly Length (ft)	Angle From North (°)	Distance To Nearest Property Boundary (ft)
		UTM E (m)	UTM N (m)	Lat (°N)	Long (° W)					
4600	No. 2 Paper Machine	509743	3855635			80	100	50	-30	1,100
4100	No. 3 Paper Machine	509677	3855529			80	100	50	-30	1,250
2100	Pulp Dryer	509648	3855443			80	100	50	-30	1,400

G. VOLUME SOURCE DATA
(Volume sources such as building fugitives that have initial dispersion vertical depth prior to release.)

Emission Point ID	Description/Name	Volume Source Coordinates Projection:				Release Height AGL (ft)	Initial Horizontal Dimension (ft)	Initial Vertical Dimension (ft)	Distance To Nearest Property Boundary (ft)
		UTM E (m)	UTM N (m)	Lat (°N)	Long (° W)				

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Bureau of Air Quality
Emission Point Information

H. FLARE SOURCE DATA
(Point sources where the combustion takes place at the tip of the stack.)

Emission Point ID	Description/Name	Flare Source Coordinates Projection:				Release Height AGL (ft)	Heat Release Rate (BTU/hr)	Distance To Nearest Property Boundary (ft)	Building		
		UTM E (m)	UTM N (m)	Lat (°N)	Long (° W)				Height (ft)	Length (ft)	Width (ft)

I. AREA CIRCULAR SOURCE DATA

Emission Point ID	Description/Name	Area Circular Source Coordinates Projection:				Release Height AGL (ft)	Radius of Area (ft)	Distance To Nearest Property Boundary (ft)
		UTM E (m)	UTM N (m)	Lat (°N)	Long (° W)			

J. AREA POLY SOURCE DATA

Emission Point ID	Description/Name	Area Poly Source Coordinates Projection:		Release Height AGL (ft)	Number of Vertices
		UTM E (m)	UTM N (m)		

K. OPEN PIT SOURCE DATA

Emission Point ID	Description/Name	Open Pit Source Coordinates Projection:		Release Height AGL (ft)	Easterly Length (ft)	Northerly Length (ft)	Volume (ft^3)	Angle From North (°)
		UTM E (m)	UTM N (m)					

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Bureau of Air Quality
Emission Point Information

K. OPEN PIT SOURCE DATA								
Emission Point ID	Description/Name	Open Pit Source Coordinates Projection:		Release Height AGL (ft)	Easterly Length (ft)	Northerly Length (ft)	Volume (ft^3)	Angle From North (°)
		UTM E (m)	UTM N (m)					

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Bureau of Air Quality
Emission Point Information

L. EMISSION RATES						
Emission Point ID	Pollutant Name	CAS #	Emission Rate (lb/hr)	Same as Permitted (1)	Controlled or Uncontrolled	Averaging Period
2610S1	SO2		474 / 1,136*	☐ Yes ☒ No	uncontrolled	24-hour
2610S1	NOX		46.7	☐ Yes ☒ No	uncontrolled	24-hour
2610S1	CO		8.2	☐ Yes ☒ No	uncontrolled	24-hour
4600	PM10		0.048	☐ Yes ☒ No	uncontrolled	24-hour
4600	PM2.5		0.048	☐ Yes ☒ No	uncontrolled	24-hour
4100	PM10		0.20	☐ Yes ☒ No	uncontrolled	24-hour
4100	PM2.5		0.20	☐ Yes ☒ No	uncontrolled	24-hour
2100	PM10		0.054	☐ Yes ☒ No	uncontrolled	24-hour
2100	PM2.5		0.054	☐ Yes ☒ No	uncontrolled	24-hour
				☐ Yes ☐ No		
				☐ Yes ☐ No		

(1) Any difference between the rates used for permitting and the air compliance demonstration must be explained in the application report.

The maximum facility-wide emissions are decreasing by 392 lb/hr for SO_2, 139 lb/hr for NO_X, 104 lb/hr for CO, 43 lb/hr for PM_{10} and 32 lb/hr for $PM_{2.5}$. The projected maximum SO_2 emission rate for 2610S1 is 474 lb/hr, the emission rate using the BACT emission limit is 1,136 lb/hr.

ATTACHMENT B
EMISSION CALCULATIONS
PSD APPLICABILITY

Emission Unit	Basis	Production		VOC (as VOC)		CO		NO_x	
		amount	uinits	factor lb/ton	emissions tpy	factor lb/ton	emissions tpy	factor lb/ton	emissions tpy
BASELINE ACTUAL EMISSIONS (BAE) - JANUARY 2010 through DECEMBER 2011									
Kraft Mill NCG System[A]	Modified	[redacted]	ADTP/day	[redacted]	104.64	[redacted]	20.48	[redacted]	202.11
Kraft Mill Bleach Plant[B]	Retired*	[redacted]	ADTP/day	[redacted]	64.04	[redacted]	214.50		
ClO2 Plant[B]	Retired	[redacted]	ton/day	[redacted]	0.32				
Methanol Tank[B]	Retired				1.75				
No. 1 Paper Machine - Coated Paper[B]	Retired*	[redacted]	ADTFP/day	[redacted]	22.71				
No. 2 Paper Machine - Coated Paper[B]	Modified	[redacted]	ADTFP/day	[redacted]	36.57				
No. 2 Paper Machine - Brown Paper[C,D]	Modified	[redacted]	ADTFP/day	[redacted]	0.00				
No. 3 Paper Machine - Coated Paper[B]	Modified	[redacted]	ADTFP/day	[redacted]	54.30				
No. 3 Paper Machine - Linerboard[C,D]	Modified	[redacted]	ADTFP/day	[redacted]	0.00				
Pulp Dryer - Bleached[B]	Modified	[redacted]	ADTFP/day	[redacted]	23.87				
Pulp Dryer - Unbleached[C,D]	Modified	[redacted]	ADTFP/day	[redacted]	0.00				
No. 1 Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	1.12	[redacted]	6.82	[redacted]	8.12
No. 2 Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	1.83	[redacted]	11.17	[redacted]	13.29
No. 3 On-Machine Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	1.93	[redacted]	11.80	[redacted]	14.04
Starch Silos[B]	Retired								
TMP[B]	Retired	[redacted]	ADTP/day	[redacted]	191.80				
TMP Bleaching[B]	Retired	[redacted]	ADTP/day	[redacted]	1.56				
Woodyard[B]	affected	[redacted]	Tons/day	[redacted]	4.17				
Power Boiler - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.19	[redacted]	1.16	[redacted]	3.87
Power Boiler - No. 6 Oil[E]	Retired	[redacted]	gal/day	[redacted]	0.94	[redacted]	2.48	[redacted]	23.31
Wastewater System[F]	affected	[redacted]	ADTP/day	[redacted]	529.35				
TOTAL BASELINE EMISSIONS					**1,041.1**		**268.4**		**264.7**
PROJECTED ACTUAL EMISSIONS (PAE)									
Kraft Mill NCG System[A]	Modified	[redacted]	ADTP/day	[redacted]	100.49	[redacted]	35.85	[redacted]	204.67
Kraft Mill Bleach Plant[B]	Retired*	[redacted]	ADTP/day	[redacted]	0.00	[redacted]	0.00		
ClO2 Plant[B]	Retired	[redacted]	ton/day	[redacted]	0.00				
Methanol Tank[B]	Retired				0.00				
No. 1 Paper Machine - Coated Paper[B]	Retired*	[redacted]	ADTFP/day	[redacted]	0.00				
No. 2 Paper Machine - Coated Paper[B]	Modified	[redacted]	ADTFP/day	[redacted]	0.00				
No. 2 Paper Machine - Brown Paper[C,D]	Modified	[redacted]	ADTFP/day	[redacted]	82.46				
No. 3 Paper Machine - Coated Paper[B]	Modified	[redacted]	ADTFP/day	[redacted]	0.00				
No. 3 Paper Machine - Linerboard[C,D]	Modified	[redacted]	ADTFP/day	[redacted]	345.11				
Pulp Dryer - Bleached[B]	Modified	[redacted]	ADTFP/day	[redacted]	0.00				
Pulp Dryer - Unbleached[C,D]	Modified	[redacted]	ADTFP/day	[redacted]	93.40				
No. 1 Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.00	[redacted]	0.00	[redacted]	0.00
No. 2 Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.00	[redacted]	0.00	[redacted]	0.00
No. 3 On-Machine Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.00	[redacted]	0.00	[redacted]	0.00
Starch Silos[B]	Retired								
TMP[B]	Retired	[redacted]	ADTP/day	[redacted]	0.00				
TMP Bleaching[B]	Retired	[redacted]	ADTP/day	[redacted]	0.00				
Woodyard[B]	affected	[redacted]	Tons/day	[redacted]	4.21				
Power Boiler - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.00	[redacted]	0.00	[redacted]	0.00
Power Boiler - No. 6 Oil[E]	Retired	[redacted]	gal/day	[redacted]	0.00	[redacted]	0.00	[redacted]	0.00
Wastewater System[F]	affected	[redacted]	ADTP/day	[redacted]	448.40				
TOTAL PROJECTED EMISSIONS					**1,074.1**		**35.8**		**204.7**
NSR APPLICABILITY - BAE-to-PAE									
TOTAL BASELINE EMISSIONS					1,041.1		268.4		264.7
TOTAL PROJECTED EMISSIONS					1,074.1		35.8		204.7
NET EMISSION INCREASE					**33.0**		**(232.6)**		**(60.1)**
NSR Threshold					**40**		**100**		**40**

A - see 'Catawba NCG Factors' tab for development of emission factors.
B - see Title V Permit Renewal Inventory.
C - Particulate emissions from NCASI TB 884, Appendix E, Table E1, source PMCA10 (linerboard machine).
D - see 'Linerboard VOC_TRS Factors' tab for development of emission factors.
E - AP-42 emission factors based on 2012 average #6 fuel oil sulfur content of 1.90%. CY2012 is the earliest year available.
F - see 'WWTP Emission Factors' tab for development of emission factors.

Emission Unit	Basis	Production		SO_2		TSP		PM_{10}	
		amount	uinits	factor lb/ton	emissions tpy	factor lb/ton	emissions tpy	factor lb/ton	emissions tpy
BASELINE ACTUAL EMISSIONS (BAE) - JANUARY 2010 through DECEMBER 2011									
Kraft Mill NCG System[A]	Modified	[redacted]	ADTP/day	[redacted]	1,904.59				
Kraft Mill Bleach Plant[B]	Retired*	[redacted]	ADTP/day						
ClO2 Plant[B]	Retired	[redacted]	ton/day						
Methanol Tank[B]	Retired								
No. 1 Paper Machine - Coated Paper[B]	Retired*	[redacted]	ADTFP/day			[redacted]	0.41	[redacted]	0.41
No. 2 Paper Machine - Coated Paper[B]	Modified	[redacted]	ADTFP/day			[redacted]	0.65	[redacted]	0.65
No. 2 Paper Machine - Brown Paper[C,D]	Modified	[redacted]	ADTFP/day			[redacted]	0.00	[redacted]	0.00
No. 3 Paper Machine - Coated Paper[B]	Modified	[redacted]	ADTFP/day			[redacted]	0.97	[redacted]	0.97
No. 3 Paper Machine - Linerboard[C,D]	Modified	[redacted]	ADTFP/day			[redacted]	0.00	[redacted]	0.00
Pulp Dryer - Bleached[B]	Modified	[redacted]	ADTFP/day			[redacted]	0.69	[redacted]	0.69
Pulp Dryer - Unbleached[C,D]	Modified	[redacted]	ADTFP/day			[redacted]	0.00	[redacted]	0.00
No. 1 Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.05	[redacted]	0.15	[redacted]	0.62
No. 2 Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.08	[redacted]	0.25	[redacted]	1.01
No. 3 On-Machine Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.08	[redacted]	0.27	[redacted]	1.07
Starch Silos[B]	Retired						0.83		0.51
TMP[B]	Retired	[redacted]	ADTP/day						
TMP Bleaching[B]	Retired	[redacted]	ADTP/day						
Woodyard[B]	affected	[redacted]	Tons/day			[redacted]	97.01	[redacted]	14.55
Power Boiler - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.01	[redacted]	0.03	[redacted]	0.10
Power Boiler - No. 6 Oil[E]	Retired	[redacted]	gal/day	[redacted]	147.92	[redacted]	10.28	[redacted]	8.05
Wastewater System[F]	affected	[redacted]	ADTP/day						
TOTAL BASELINE EMISSIONS					**2,052.7**		**111.6**		**28.6**
PROJECTED ACTUAL EMISSIONS (PAE)									
Kraft Mill NCG System[A]	Modified	[redacted]	ADTP/day	[redacted]	2,076.10				
Kraft Mill Bleach Plant[B]	Retired*	[redacted]	ADTP/day						
ClO2 Plant[B]	Retired	[redacted]	ton/day						
Methanol Tank[B]	Retired								
No. 1 Paper Machine - Coated Paper[B]	Retired*	[redacted]	ADTFP/day			[redacted]	0.00	[redacted]	0.00
No. 2 Paper Machine - Coated Paper[B]	Modified	[redacted]	ADTFP/day			[redacted]	0.00	[redacted]	0.00
No. 2 Paper Machine - Brown Paper[C,D]	Modified	[redacted]	ADTFP/day			[redacted]	0.21	[redacted]	0.21
No. 3 Paper Machine - Coated Paper[B]	Modified	[redacted]	ADTFP/day			[redacted]	0.00	[redacted]	0.00
No. 3 Paper Machine - Linerboard[C,D]	Modified	[redacted]	ADTFP/day			[redacted]	0.88	[redacted]	0.88
Pulp Dryer - Bleached[B]	Modified	[redacted]	ADTFP/day			[redacted]	0.00	[redacted]	0.00
Pulp Dryer - Unbleached[C,D]	Modified	[redacted]	ADTFP/day			[redacted]	0.24	[redacted]	0.24
No. 1 Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.00	[redacted]	0.00	[redacted]	0.00
No. 2 Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.00	[redacted]	0.00	[redacted]	0.00
No. 3 On-Machine Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.00	[redacted]	0.00	[redacted]	0.00
Starch Silos[B]	Retired						0.00		0.00
TMP[B]	Retired	[redacted]	ADTP/day						
TMP Bleaching[B]	Retired	[redacted]	ADTP/day						
Woodyard[B]	affected	[redacted]	Tons/day			[redacted]	105.00	[redacted]	15.75
Power Boiler - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.00	[redacted]	0.00	[redacted]	0.00
Power Boiler - No. 6 Oil[E]	Retired	[redacted]	gal/day	[redacted]	0.00	[redacted]	0.00	[redacted]	0.00
Wastewater System[F]	affected	[redacted]	ADTP/day						
TOTAL PROJECTED EMISSIONS					**2,076.1**		**106.3**		**17.1**
NSR APPLICABILITY - BAE-to-PAE									
TOTAL BASELINE EMISSIONS					2,052.7		111.6		28.6
TOTAL PROJECTED EMISSIONS					2,076.1		106.3		17.1
NET EMISSION INCREASE					**23.4**		**(5.2)**		**(11.6)**
NSR Threshold					**40**		**25**		**15**

A - see 'Catawba NCG Factors' tab for development of emission factors.
B - see Title V Permit Renewal Inventory.
C - Particulate emissions from NCASI TB 884, Appendix E, Table E1, source PMCA10 (linerboard machine).
D - see 'Linerboard VOC_TRS Factors' tab for development of emission factors.
E - AP-42 emission factors based on 2012 average #6 fuel oil sulfur content of 1.90%. CY2012 is the earliest year available.
F - see 'WWTP Emission Factors' tab for development of emission factors.

Emission Unit	Basis	Production		$PM_{2.5}$		TRS		H_2S	
		amount	uinits	factor lb/ton	emissions tpy	factor lb/ton	emissions tpy	factor lb/ton	emissions tpy
BASELINE ACTUAL EMISSIONS (BAE) - JANUARY 2010 through DECEMBER 2011									
Kraft Mill NCG System[A]	Modified	[redacted]	ADTP/day			[redacted]	17.50	[redacted]	3.89
Kraft Mill Bleach Plant[B]	Retired*	[redacted]	ADTP/day			[redacted]	1.18		
ClO2 Plant[B]	Retired	[redacted]	ton/day						
Methanol Tank[B]	Retired								
No. 1 Paper Machine - Coated Paper[B]	Retired*	[redacted]	ADTFP/day	[redacted]	0.41				
No. 2 Paper Machine - Coated Paper[B]	Modified	[redacted]	ADTFP/day	[redacted]	0.65				
No. 2 Paper Machine - Brown Paper[C,D]	Modified	[redacted]	ADTFP/day	[redacted]	0.00	[redacted]	0.00		
No. 3 Paper Machine - Coated Paper[B]	Modified	[redacted]	ADTFP/day	[redacted]	0.97				
No. 3 Paper Machine - Linerboard[C,D]	Modified	[redacted]	ADTFP/day	[redacted]	0.00	[redacted]	0.00		
Pulp Dryer - Bleached[B]	Modified	[redacted]	ADTFP/day	[redacted]	0.69	[redacted]	1.18		
Pulp Dryer - Unbleached[C,D]	Modified	[redacted]	ADTFP/day	[redacted]	0.00	[redacted]	0.00		
No. 1 Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.62				
No. 2 Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	1.01				
No. 3 On-Machine Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	1.07				
Starch Silos[B]	Retired				0.19				
TMP[B]	Retired	[redacted]	ADTP/day						
TMP Bleaching[B]	Retired	[redacted]	ADTP/day						
Woodyard[B]	affected	[redacted]	Tons/day	[redacted]	0.97				
Power Boiler - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.10				
Power Boiler - No. 6 Oil[E]	Retired	[redacted]	gal/day	[redacted]	6.07				
Wastewater System[F]	affected	[redacted]	ADTP/day			[redacted]	129.52	[redacted]	5.91
TOTAL BASELINE EMISSIONS					**12.8**		**149.4**		**9.8**
PROJECTED ACTUAL EMISSIONS (PAE)									
Kraft Mill NCG System[A]	Modified	[redacted]	ADTP/day			[redacted]	19.00	[redacted]	4.31
Kraft Mill Bleach Plant[B]	Retired*	[redacted]	ADTP/day			[redacted]	0.00		
ClO2 Plant[B]	Retired	[redacted]	ton/day						
Methanol Tank[B]	Retired								
No. 1 Paper Machine - Coated Paper[B]	Retired*	[redacted]	ADTFP/day	[redacted]	0.00				
No. 2 Paper Machine - Coated Paper[B]	Modified	[redacted]	ADTFP/day	[redacted]	0.00				
No. 2 Paper Machine - Brown Paper[C,D]	Modified	[redacted]	ADTFP/day	[redacted]	0.21	[redacted]	3.27		
No. 3 Paper Machine - Coated Paper[B]	Modified	[redacted]	ADTFP/day	[redacted]	0.00				
No. 3 Paper Machine - Linerboard[C,D]	Modified	[redacted]	ADTFP/day	[redacted]	0.88	[redacted]	13.69	[redacted]	
Pulp Dryer - Bleached[B]	Modified	[redacted]	ADTFP/day	[redacted]	0.00	[redacted]	0.00		
Pulp Dryer - Unbleached[C,D]	Modified	[redacted]	ADTFP/day	[redacted]	0.24	[redacted]	3.70		
No. 1 Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.00				
No. 2 Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.00				
No. 3 On-Machine Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.00				
Starch Silos[B]	Retired				0.00				
TMP[B]	Retired	[redacted]	ADTP/day						
TMP Bleaching[B]	Retired	[redacted]	ADTP/day						
Woodyard[B]	affected	[redacted]	Tons/day	[redacted]	1.05				
Power Boiler - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.00				
Power Boiler - No. 6 Oil[E]	Retired	[redacted]	gal/day	[redacted]	0.00				
Wastewater System[F]	affected	[redacted]	ADTP/day			[redacted]	118.26	[redacted]	5.42
TOTAL PROJECTED EMISSIONS					**2.4**		**157.9**		**9.7**
NSR APPLICABILITY - BAE-to-PAE									
TOTAL BASELINE EMISSIONS					12.8		149.4		9.8
TOTAL PROJECTED EMISSIONS					2.4		157.9		9.7
NET EMISSION INCREASE					**(10.4)**		**8.5**		**(0.1)**
NSR Threshold					**10**		**10**		**10**

A - see 'Catawba NCG Factors' tab for development of emission factors.
B - see Title V Permit Renewal Inventory.
C - Particulate emissions from NCASI TB 884, Appendix E, Table E1, source PMCA10 (linerboard machine).
D - see 'Linerboard VOC_TRS Factors' tab for development of emission factors.
E - AP-42 emission factors based on 2012 average #6 fuel oil sulfur content of 1.90%. CY2012 is the earliest year available.
F - see 'WWTP Emission Factors' tab for development of emission factors.

Emission Unit	Basis	Production		LEAD		CO_2e	
		amount	uinits	factor lb/ton	emissions tpy	factor lb/ton	emissions tpy
BASELINE ACTUAL EMISSIONS (BAE) - JANUARY 2010 through DECEMBER 2011							
Kraft Mill NCG System[A]	Modified	[redacted]	ADTP/day				
Kraft Mill Bleach Plant[B]	Retired*	[redacted]	ADTP/day				
ClO2 Plant[B]	Retired	[redacted]	ton/day				
Methanol Tank[B]	Retired						
No. 1 Paper Machine - Coated Paper[B]	Retired*	[redacted]	ADTFP/day				
No. 2 Paper Machine - Coated Paper[B]	Modified	[redacted]	ADTFP/day				
No. 2 Paper Machine - Brown Paper[C,D]	Modified	[redacted]	ADTFP/day				
No. 3 Paper Machine - Coated Paper[B]	Modified	[redacted]	ADTFP/day				
No. 3 Paper Machine - Linerboard[C,D]	Modified	[redacted]	ADTFP/day				
Pulp Dryer - Bleached[B]	Modified	[redacted]	ADTFP/day				
Pulp Dryer - Unbleached[C,D]	Modified	[redacted]	ADTFP/day				
No. 1 Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.00	[redacted]	9 514
No. 2 Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.00	[redacted]	15,576
No. 3 On-Machine Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.00	[redacted]	16,453
Starch Silos[B]	Retired						
TMP[B]	Retired	[redacted]	ADTP/day				
TMP Bleaching[B]	Retired	[redacted]	ADTP/day				
Woodyard[B]	affected	[redacted]	Tons/day				
Power Boiler - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.00	[redacted]	1,618
Power Boiler - No. 6 Oil[E]	Retired	[redacted]	gal/day	[redacted]	0.00	[redacted]	12,373
Wastewater System[F]	affected	[redacted]	ADTP/day				
TOTAL BASELINE EMISSIONS					0.00		55,535
PROJECTED ACTUAL EMISSIONS (PAE)							
Kraft Mill NCG System[A]	Modified	[redacted]	ADTP/day				
Kraft Mill Bleach Plant[B]	Retired*	[redacted]	ADTP/day				
ClO2 Plant[B]	Retired	0.0	ton/day				
Methanol Tank[B]	Retired						
No. 1 Paper Machine - Coated Paper[B]	Retired*	(b) (4)	ADTFP/day				
No. 2 Paper Machine - Coated Paper[B]	Modified	[redacted]	ADTFP/day				
No. 2 Paper Machine - Brown Paper[C,D]	Modified	[redacted]	ADTFP/day				
No. 3 Paper Machine - Coated Paper[B]	Modified	[redacted]	ADTFP/day				
No. 3 Paper Machine - Linerboard[C,D]	Modified	[redacted]	ADTFP/day				
Pulp Dryer - Bleached[B]	Modified	[redacted]	ADTFP/day				
Pulp Dryer - Unbleached[C,D]	Modified	[redacted]	ADTFP/day				
No. 1 Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.00	[redacted]	0
No. 2 Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.00	[redacted]	0
No. 3 On-Machine Coater - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.00	[redacted]	0
Starch Silos[B]	Retired	[redacted]					
TMP[B]	Retired	[redacted]	ADTP/day				
TMP Bleaching[B]	Retired	[redacted]	ADTP/day				
Woodyard[B]	affected	[redacted]	Tons/day				
Power Boiler - Natural Gas[B]	Retired	[redacted]	mmBtu/day	[redacted]	0.00	[redacted]	0
Power Boiler - No. 6 Oil[E]	Retired	[redacted]	gal/day	[redacted]	0.00	[redacted]	0
Wastewater System[F]	affected	[redacted]	ADTP/day				
TOTAL PROJECTED EMISSIONS					0.00		0
NSR APPLICABILITY - BAE-to-PAE							
TOTAL BASELINE EMISSIONS					0.00		55,535
TOTAL PROJECTED EMISSIONS					0.00		0
NET EMISSION INCREASE					**(0.0)**		**(55,535)**
NSR Threshold					**0.6**		**75,000**

A - see 'Catawba NCG Factors' tab for development of emission factors.
B - see Title V Permit Renewal Inventory.
C - Particulate emissions from NCASI TB 884, Appendix E, Table E1, source PMCA10 (linerboard machine).
D - see 'Linerboard VOC_TRS Factors' tab for development of emission factors.
E - AP-42 emission factors based on 2012 average #6 fuel oil sulfur content of 1.90%. CY2012 is the earliest year available.
F - see WWTP Emission Factors' tab for development of emission factors.

ATTACHMENT C
EMISSION CALCULATIONS
BLEACHED and UNBLEACHED PULP PRODUCTION

Source
SOG SYSTEM
Stripper-Off-Gases[8,9,12]
Combination Boiler Control Efficiency (%)[3]
TOTAL SOG EMISSIONS (lb/ADTP)
LVHC SYSTEM
Evaporators[10,11]
Turpentine Decanter[10,11]
LVHC Collection System (lb/ADTP)
LVHC System TRS Scrubber Control Efficiency (%)[2]
LVHC Collection System (lb/ADTP)
Combination Boiler Control Efficiency (%)[3]
TOTAL LVHC EMISSIONS (lb/ADTP)
HVLC SYSTEM
Continuous Digester Chip Bin[10,11]
Continuous Digester Relief Gas[10,11]
Pressure Refiners[10,11]
Pressure Diffusion Washer[10,11]
Blow Tank[10,11]
Brownstock Washers[7,13]
HD Tank (Unscreened Stock)[13]
O_2 Delignification System[13]
Knotter System[13]
Screening System[13]
Screen Room Washer (Decker)[13]
Deshive Refiners[5,13]
Screw Presses[6,13]
HVLC Collection System (lb/ADTP)
Combination Boiler Control Efficiency (%)[3]
TOTAL HVLC EMISSIONS (lb/ADTP)
NCG SYSTEM EMISSIONS
TOTAL NCG SYSTEM EMISSIONS (lb/ADTP)

(b) (4)

(b) (4)

Source								
SOG SYSTEM								
Stripper-Off-Gases[8,9,12]								
Combination Boiler Control Efficiency (%)[3]								
TOTAL SOG EMISSIONS (lb/ADTP)								
LVHC SYSTEM								
Evaporators[10,11]								
Turpentine Decanter[10,11]								
LVHC Collection System (lb/ADTP)								
LVHC System TRS Scrubber Control Efficiency (%)[2]								
LVHC Collection System (lb/ADTP)								
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Screw Presses[6,13]								
HVLC Collection System (lb/ADTP)								
Combination Boiler Control Efficiency (%)[3]								
TOTAL HVLC EMISSIONS (lb/ADTP)								
NCG SYSTEM EMISSIONS								
TOTAL NCG SYSTEM EMISSIONS (lb/ADTP)								

(b) (4)

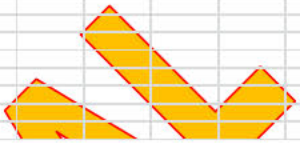
(b) (4)

(b) (4)

NCASI Methanol a

(b) (4)

Bleached
Unbleached



NCASI
IMPACT. SCIENCE. SOLUTIONS.

February 20, 2019

TO: Bob Tourville, New Indy Containerboard

FROM: Zach Emerson, NCASI

SUBJECT: Methanol and TRS Content of LVHCs at Bleached and Unbleached Chemical Pulp Mills

At your request, NCASI staff evaluated the underlying emissions data in the NCASI Pulp and Paper Air Toxics Database (2018 release version). The goal was to determine if the factors for methanol and total reduced sulfur (TRS) in Kraft Mill low volume high concentration gases (LVHCs, i.e. digester + evaporator noncondensible gases (NCGs)) differed significantly between bleached and unbleached pulp mills.

Background

Methanol and TRS are lignin degradation compounds generated in the digester during Kraft pulping. The extent of formation varies and depends upon several process factors, including cooking time, chemical use and temperature. It is expected that a black liquor and pulp mixture cooked to a higher Kappa number (i.e., more residual lignin and cooked less aggressively) will contain lower amounts of methanol and TRS compounds. As bleaching-grade pulps are typically cooked to a lower Kappa number, the resulting digester gases, black liquor and pulp would be expected to have higher amounts of methanol and TRS compounds than for unbleached pulp manufacturing.

Given TRS and methanol masses in LVHCs are attributable to their presence in digester off-gases and in weak liquor, it is reasonable to expect that the LVHC content of these chemicals would be higher at bleached pulp mills than at unbleached pulp mills. Below are the results of an analysis of NCASI information that examines this hypothesis.

Analysis

The Master Summary Table of the NCASI Air Toxics Database (2015 release version) presents various NCG loading factors for methanol and for TRS; however, it combines the LVHC measurements at bleached and unbleached mills into a single dataset to calculate an average. Individual test event data are available in the Detailed Sheets of the database. This database compiles emissions information for many compounds at many process units and is made available to NCASI members on the NCASI Website. Information from the following file was used in this analysis:

- Table A6a and A6b – Kraft Pulp Mill NCGs (September 2018).xls

The underlying reports for each facility were reviewed to determine if the facility manufactured bleached or unbleached pulp. The data was then segregated into the following four sets:

- LVHCs at Bleached Pulp Mills – Methanol
- LVHCs at Unbleached Pulp Mills – Methanol
- LVHCs at Bleached Pulp Mills – TRS
- LVHCs at Unbleached Pulp Mills - TRS

Note there were five LVHC data points for which there is no hydrogen sulfide data; these facilities were excluded from the analysis, as TRS could not be estimated. There was one TRS outlier measurement for both unbleached and bleached LVHCs, as well.

Table 1 presents calculated **methanol** factors for LVHCs at bleached and unbleached facilities. A total of 14 LVHCs at bleached mills and 5 LVHCs at unbleached mills are included.

Table 1: Comparison of Methanol LVHC Factors at Bleached and Unbleached Facilities

Methanol	Mass Load Factor (lb of Methanol/ADTUBP)	
	At Bleached Facilities	At Unbleached Facilities
Mean	0.68	0.05
Median	0.19	0.06
Standard Deviation	1.1	0.04
Count	14	5
Range	<0.01 to 3.5	<0.01 to 0.11

The mean and median methanol emission factors for LVHCs at bleached and unbleached facilities are quite different, with the mean bleached methanol factor being higher than the mean unbleached factor.

Table 2 presents calculated **TRS** factors for LVHCs at bleached and unbleached facilities. A total of 7 LVHCs at bleached mills and 4 LVHCs at unbleached mills are included.

Table 2: Comparison of TRS LVHC Factors at Bleached and Unbleached Facilities

Total Reduced Sulfur	Mass Load Factor (lb of S/ADTUBP)	
	At Bleached Facilities	At Unbleached Facilities
Mean	1.2	0.91
Median	1.0	0.84
Standard Deviation	1.1	0.68
Count	7	4
Range	0.09 to 3.3	0.28 to 1.7

The mean and median TRS factors for bleached and unbleached LVHCs are also different, with the mean bleached LVHC TRS mass load factor being higher than the mean unbleached LVHC factor.

The results of this analysis support the hypothesis that the mass loads of methanol and TRS in low volume high concentration gases are lower at unbleached pulp mills than at bleached pulp mills. NCASI will evaluate making this change in the NCASI Air Toxics Database.

If you have any questions concerning this analysis, please feel free to contact me.

NATIONAL COUNCIL FOR AIR AND STREAM IMPROVEMENT, INC.
402 SW 140th Terrace
Newberry, FL 32669-3000
(352) 331-1745
(352) 331-1766
ncasi.org

NCASI Condensate (b) (4)

Bleached Condensates
Unbleached Condensates

Bleach Plant Effluent
Total Bleached Mill WW
Unbleached Mill WW

(b) (4)

TABLE 2 NON-KRAFT WWTP INFLUENT CONCENTRATIONS FOR METHANOL

TYPE OF PULPING	REF.	NO. OF MILLS SAMPLED	METHANOL	
			RANGE	AVERAGE
Bleached Sulfite	NCASI 1994a	2	15 to 79	47.4
Semi-Chemical	NCASI 1994a	1		27.1
Deinked Tissue	NCASI*	1		2.7
Deinked Newsprint	NCASI*	1		7.8
Wastepaper, Board	NCASI*	1		1.0
Wastepaper, Corrugated	NCASI*	1	0.8 to 2.1	1.5
Groundwood, Newsprint	NCASI*	1		0.7

*NCASI WWTP Sampling Database – Unpublished

TABLE 3 METHANOL CONTENT OF KRAFT MILL CONDENSATES AND BLEACH PLANT EFFLUENTS (SOFTWOOD AND HARDWOOD)

	NO. OF MILLS SAMPLED	METHANOL, lb/ADTUBP		
		RANGE	MEAN	MEDIAN
Unbleached Kraft Mill Condensates[1]	3	11.3 to 16.2	13.4	12.7
Bleached Kraft Mill Condensates[1] (including mills with O_2 delignification)	15	16.5 to 27.0	21.1	21.4
Bleach Plant Effluents[2]	lab study	4.0 to 6.5	5.0	4.9

[1] includes all pulp mill and evaporator area condensates (NCASI 1995)
[2] includes methanol that entered the bleach plant with pulp or the ClO_2 liquor and methanol generated during bleaching (NCASI 1994b)

3.3 Otherwise use the toxic chemical

This would be the sum of all the methanol used at the manufacturing site. A 10,000 lb/yr reporting threshold applies for this category. Ancillary or other uses of methanol could include methanol used in printing inks, solvents, antifreeze, and methanol-based ClO_2 generation processes.

SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR

4.1 ___ (Enter two-digit code from instruction package.)

At any given time, methanol may be present at the mill-site in various stored liquid streams which include purchased mixtures containing methanol, black liquors stored in tanks, and pulp storage vats. Methanol may also be present in trace quantities in wastewater treatment plants. For a kraft mill, in the absence of mill-specific information, the estimates given in Table 4 for methanol concentration in liquids may be used. The wastewater treatment plant (WWTP) influent methanol concentrations at several non-kraft pulp and paper producing facilities were summarized in Table 2. The WWTP

NCASI WWTP H2S Concentration

Bleached
Unbleached
(b) (4)

TABLE 2 KRAFT WWTP INFLUENT CONCENTRATIONS OF HYDROGEN SULFIDE (NCASI WWTP Sampling Database - Unpublished)

TYPE OF PULPING	NO. OF MILLS SAMPLED	CONCENTRATION, ppb	
		Range	Average
Bleached Kraft	12	71 – 15,700	4520
Unbleached Kraft	7	617 - 4306	2402
Sulfite + Recycle	2	238 - 1287	763
TMP + Recycle	2	5039 - 5320	5180
Hard-piped Condensates	8	12,100 – 102,825	69,000

Sample Calculation for Threshold Determination:

A kraft mill produces 1100 ADTUBP/day. At this mill, brown stock washer vent gases are collected and treated in an incineration device. The pulping process generates 3300 lb BLS/ADTUBP which is fired in DCE furnaces and 0.275 ton CaO is regenerated in the lime kiln per ADTUBP. The mill operates a 500 x 10^6 Btu/hr wood-fired boiler and a 50 tpd tall oil plant. The final product is 1000 tons of bleached paper per day. The mill operates all 365 days/yr and discharges 20 x 10^6 gpd from the pulp mill.

Consider two cases of condensate collection and handling. In Case 1, the mill operates a steam stripper. In Case 2, the mill "hard-pipes" a 1 MGD of its condensates to the AST system. Assume this mill does not have its own condensate hydrogen sulfide data and uses the mean value of 69.0 mg/L of hydrogen sulfide shown in Table 3 as being present in all condensates at the mill. For Case 1, the mill with a steam stripper, the condensate hydrogen sulfide is divided between the amount in the stripper off-gases and the amount sewered to the WWTP. For Cases 2 and 3, all of the condensate will be sewered to the WWTP.

Table 4 shows the amounts of hydrogen sulfide emitted from several major operations at this example mill as estimated using factors given in Table 1. Table 3 also shows the amount of hydrogen sulfide manufactured and present in (1) in uncontrolled NCGs and (2) in WWTP untreated effluents. For this example mill, based on the total amount of hydrogen sulfide manufactured and either emitted, present in strong liquor or released to the WWTP, a SARA 313 report does have to be filed as the amount exceeds 25,000 lb/yr.

NCASI Condensate Nitrogen Concentration - NCASI TB 802 - Souhern Kraft Mill Condensates - mixed Pine/Hardwood

(b) (4)

(b) (4)

(b) (4)

TB 804 - Laboratory batch digester.

Table 3.1. Kraft Pulping Results

	Linerboard		Bleachable	
Species	Douglas fir		Douglas fir	
W.L. Active Alkali	16.8%		18.7%	
W.L. Sulfidity	30%		30%	
H Factor	400[a]		1850[b]	
Total Yield	56.6%		47.3%	
Rejects	6.4%		1.2%	
Kappa	96		28	
Black Liquor				
Residual AA	2.9 g/L		3.1 g/L	
Na_2S (HS^-)	0.136 mol/L[c]	10.6 lb/ODTP	0.153 mol/L[c]	11.9 lb/ODTP
MM	0.0018 mol/L	0.69 lb/ODTP	0.0069 mol/L	2.65 lb/ODTP
DMS	0.00065 mol/L	0.32 lb/ODTP	0.0023 mol/L	1.15 lb/ODTP
DMDS	0.000066 mol/L	0.05 lb/ODTP	0.00023 mol/L	0.17 lb/ODTP
$Na_2S_2O_3$	0.0015 mol/L	0.24 lb/ODTP	0.0017 mol/L	0.27 lb/ODTP
Na_2SO_4	0.0007 mol/L	0.1 lb/ODTP	0.0009 mol/L	0.13 lb/ODTP
Black Liquor Solids	12.7%		15.1%	
Black Liquor Heating Value	6630 Btu/lb		6650 Btu/lb	

[a] One hour heatup, 30 min. at 170°C.
[b] One hour heatup, 108 min. at 170°C.
[c] Values shown in table were determined by titrimetric method. Corresponding values measured by headspace sampling and gas chromatography were 0.147 and 0.163 mol/L for linerboard and bleachable grades, respectively.

ATTACHMENT D
EMISSION CALCULATIONS
COATED PAPER AND LINERBOARD PRODUCTION

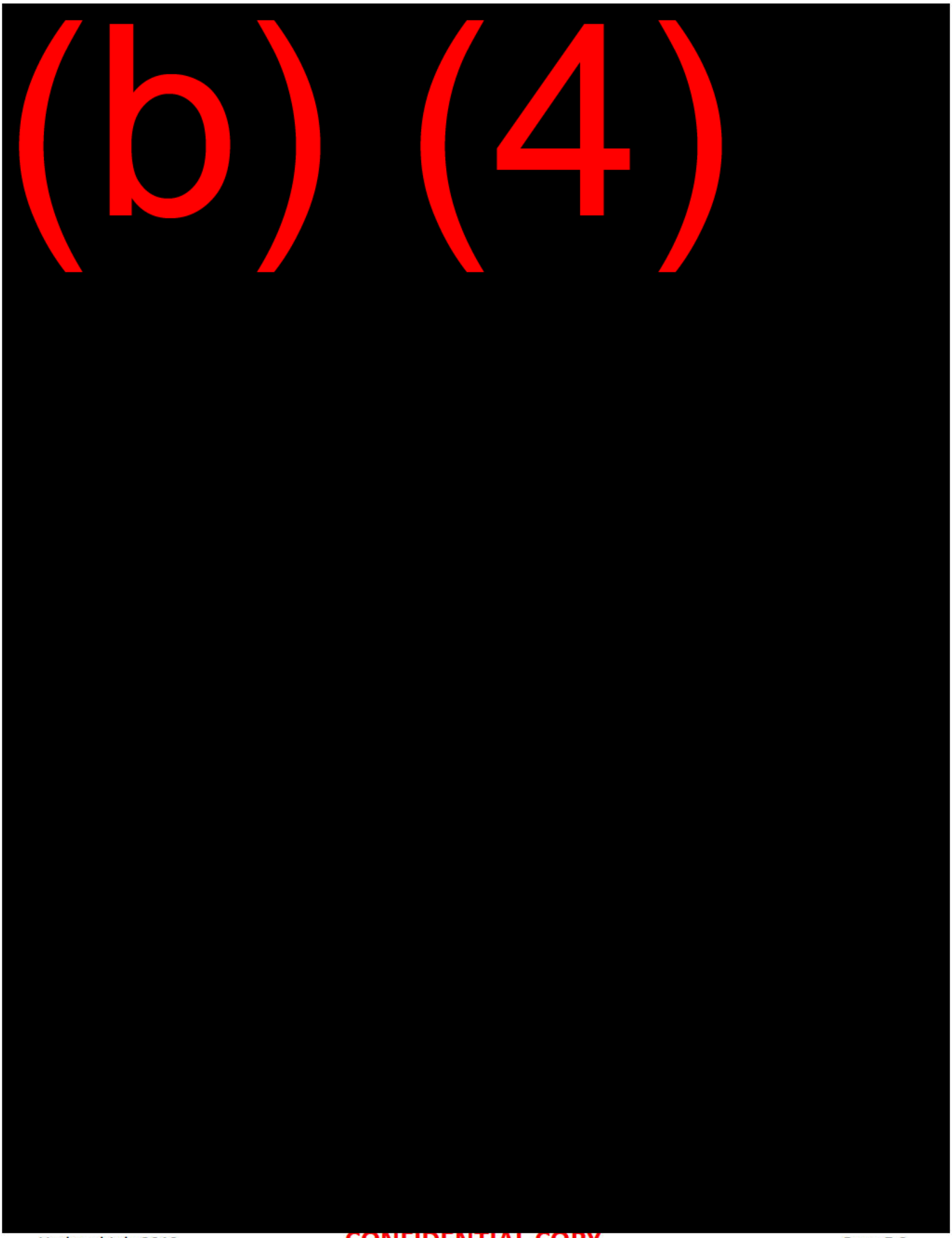
NCASI Linerboard Machine Emssion Factors

NCASI emission factors for paper machines producing linerboard from unbleached southern softwood kraft pulp (southern pine)
Mill B and Mill G produce linerboard primarily from softwood kraft pulp (southern pine)

Compound	
Acetaldehyde	(b) (4)
Acetone	
Acrolein	
Benzene	
Carbon Tetrachloride	
Chlorobenzene	
Chloroform	
1,2-Dichloroethane	
1,2-Dichloroethylene	
Dimethyl Disulfide	
Dimethyl Sulfide	
Formaldehyde	
n-Hexane	
Methanol	
Methyl Ethyl Ketone	
Methyl Mercaptan	
Methylene Chloride	
Methyl Isobutyl Ketone	
Propionaldehyde	
Styrene	
Terpenes	
Tetrachloroethylene	
Toluene	
1,2,4-Trichlorobenzene	
1,1,1-Trichloroethane	
1,1,2-Trichloroethane	
Trichloroethylene	
m,p-Xylene	
o-Xylene	
Total TRS	
Total VOC	
VOCs as C	

ATTACHMENT E

2010 and 2011 BASELINE ACTUAL PRODUCTION


(b) (4)